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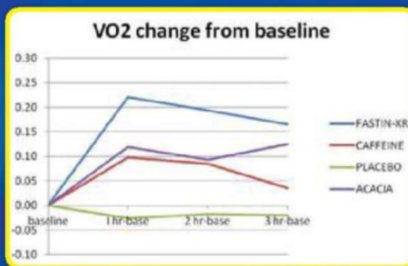
- Fastin[®]-RR users lost 208% more WEIGHT and 385% MORE FAT than placebo and 167% more than the Caffeine group!
- Fastin[®]-RR was shown to elevate Energy Expenditure (Metabolism) 22.1 % in 45 Minutes when compared against Placebo and was (66% stronger than 30mg Ephedrine and 152% stronger than 10mg Ephedrine)!
- Fastin[®]-RR users saw an Incredible 16.6 % increase in Resting Energy Expenditure (Metabolism) over the first 3 hours with an increase of over 14.5% in Energy Uptake over the entire 6 hours!



IFBB Bikini Pro
Juliana Daniell
(Fastin Spokeswoman)

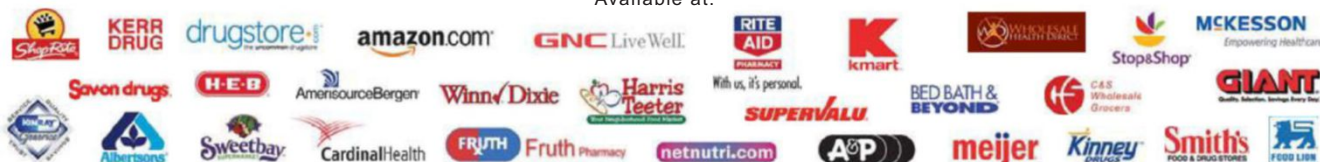
In this landmark study Fastin[®]-RR (Rapid Release Caplets) was clinically shown to Burn FAT for 6+ Hours. These findings indicate that resting energy expenditure is significantly enhanced with Fastin[®]-RR. These findings also indicate that Fastin[®]-RR produced a substantial shift in energy substrate utilization with significantly greater levels of fat oxidation than placebo or caffeine!†

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INGRI DeGroot,
40 yrs. old of Battle Ground, WA
Lost 45 lbs!*



JOLYNN Reddon,
41 yrs. old of Las Vegas, NV
Lost 90 lbs!*

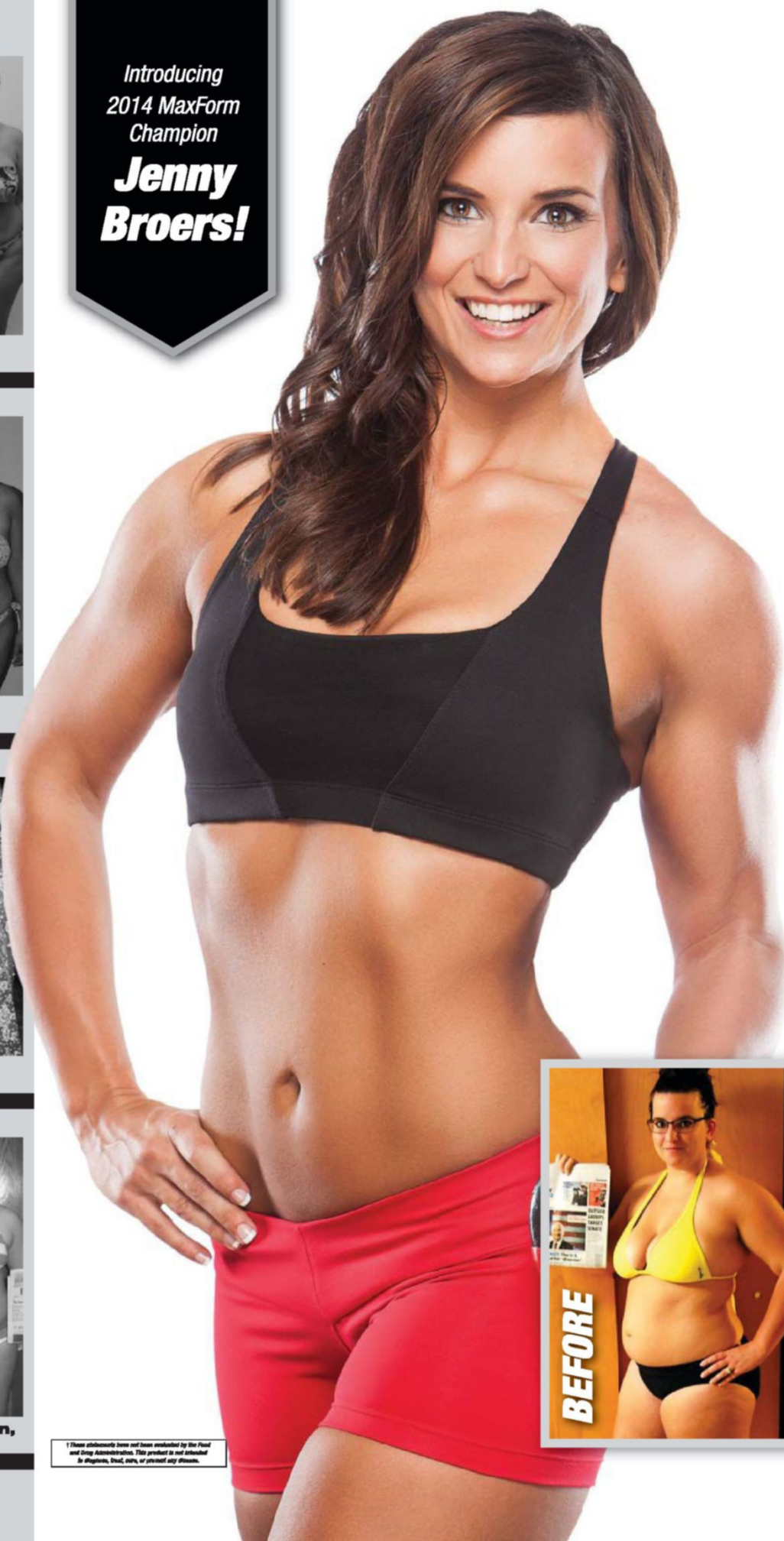


ARPANA Prasad,
33 yrs. old of Vancouver, WA
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AMANDA Freese,
27 yrs. old of Champlin, MN
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Fat Loss Special: LOOK GREAT FOR SUMMER

It's officially swimsuit season, and you're in luck. This is the fat-loss Special issue of FitnessRx! To help you get in your best shape before summer ends, we've put together some of the most effective workouts for blasting fat and toning up for summer—along with the latest scientific research on healthy eating, diets, training and more.

We all know that a great set of abs are essential in the summer season. In "Fabulous Flat Abs with IFBB Bikini Pro Callie Bundy" by Lisa Steuer on page 42, our cover model demonstrates a great flat abs workout that will help you build your abdominal muscles and sculpt a sexy six-pack. This workout uses a variety of tools and bodyweight moves to hit your abs from all angles and increase the intensity. Growing up, Callie was always athletic. She knows what it takes to train hard and make it a lifestyle, which is why she is the perfect role model for us. "Training is innate for me," said Callie. "It's something I've always done, will always do ... I love it."

"Bikini Season Blast-off with IFBB Bikini Pros Ashley Kaltwasser & Juliana Daniell" by Jaime Baird on page 58, is a high-intensity, fat-burning program that will really get you swimsuit ready! This is a total body program that produces results because it's all about less rest with more volume, plyometrics, compound movements, isolation work and combination of exercises. With this program, you can shape up in just two weeks, which is perfect if you've got a beach vacation coming up. This program also works as a switch-up from your normal routine to really amp up the results, or try it as a weekly challenge in order to boost the intensity of your regular training. No matter how you use the program, you can be sure it will help you blast fat and tone up for summer.

Whether you are on vacation this summer or busy with your normal routine, you need a workout that travels light and gets the job done quickly. This is where bodyweight training comes into play, which has become so popular that it's been named a top fitness trend for this year. In "Get Ripped and Toned Bodyweight Workout with IFBB Bikini Champion India Paulino" by Jaime Baird on page 48, you'll find 10 unique exercises that will challenge your body and help you burn some serious calories. Get ready to sculpt and burn with this high-intensity circuit. "You are capable of doing whatever you dream of; just find that fire within you and light it!" said India.

Glutes and waist workouts are a must for the summer season. In "Tiny Waist and Tight Butt Program with IFBB Bikini Pro Sara Back" by Lisa Steuer on page 66, tone up with lunges deadlifts, cable exercises and more. Sara is a Finnish Bikini champion who knows all about sculpting award-winning glutes and abs. Whether you need a little extra toning up or just a switch-up from your regular routine, this program is for you—so get ready to tighten up before summer ends! "Dream big ... and then give 100 percent to reach that dream. You will be surprised about the result," said Sara.

To help you even further in your summer fitness goals, this month we also have:

- In "Effect of Meal Frequency on Fat Loss" by Brad Schoenfeld, Ph.D. on page 84, learn the best approach to your diet in order to maximize fat loss.
- In "4 New Glute and Hamstring Exercises You Aren't Doing" by Nick Tumminello on page 88, take your lower body training to a new level with some unique strengthening and toning exercises.
- In "Flat Abs: High-Intensity Cardio Versus Low-Intensity Cardio," by Michael J. Rudolph, Ph.D. on page 82, discover the best method for driving fat loss while enabling lean muscle growth.

This is just a sample of the great material you'll find in this month's issue: the best cutting-edge tips, workouts and advice from the experts, as well as scientifically backed research on exercise and healthy eating to whip you into your best summer shape. Get ready to tone up and blast fat before summer ends!

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LETTER OF THE MONTH

READER UPDATE

My name is Cherish Coates. A couple years ago, I wrote to your magazine regarding how much it had motivated me to train to compete in a Figure competition. Your magazine still continues to motivate me and provides so much helpful information. I wanted to give an update and let you know that I finally did compete in my first Figure competition (without a prep coach!), the Arizona Elite Championships, and even placed first in my class! Thank you so much for providing a great magazine!

Cherish Marie Coates
Email

FAT-BURNING FINISHERS

I really like the workouts with Janet Layug in the June issue ["Fat-burning Finishers: Make Over Your Cardio Routine with Strength and Plyo Circuits," June 2015]. I admit that I have a love/hate relationship with cardio— I don't exactly *like* doing it, but I love the way it makes me feel when I'm done, as well as the fat-burning effects. So I was really excited to see this cardio feature with Janet, because there are some really great ideas that keep me from getting bored with my cardio! Thanks so much for helping me get ready for summer!

Emily Cabrini
Email

SCULPTED SUMMER ABS

I see ab-training articles all the time, but the Jessica Renee workouts from the June issue have become a regular part of my rotation ["Sculpted Summer Abs Weekly Core-training Program with IFBB Pro Jessica Renee," June 2015]. It has gotten me into the habit of training the abs multiple times a week, and allows me to switch things up to keep my body guessing. I already feel like I'm seeing some results and also my core feels like it's like getting stronger. Looking forward to the next issue!

Chelsea Senese
Email



Send us your comments!
editor@fitnessrxmag.com or
Advanced Research Media
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Setauket, NY 11733

TOTAL BODY TRANSFORMATION

The four-week total body transformation article is amazing ["High-intensity 4-Week Body Transformation Plan," June 2015]! Justine Munro is such an inspiration to me and I dream of one day looking as good as she does. I am almost complete with week one of the program, and I already feel stronger. It's making me more motivated than ever to really make a positive change for myself and really accomplish my goals and get to where I want to be. For the first time, I am actually excited about the summer and trying on swimsuits!

Stacey Sorrentino
Email

BOMBSHELL BOOTY

I just wanted to send you a quick note to let you know how much I am enjoying the Bombshell Booty workout from the new issue [Bombshell Booty Workout With IFBB Bikini Pro Bianca Berry," June 2015]. I liked the workout and exercises because it was a little bit different than what I've seen in other workouts, and clearly the Bombshell method is effective! Plus, I love any workout that focuses on the booty, so I am always looking for new ideas— especially because this hasn't been an easy area for me to see results. Thank you for inspiring me with each and every issue.

Monica Ferring
Email

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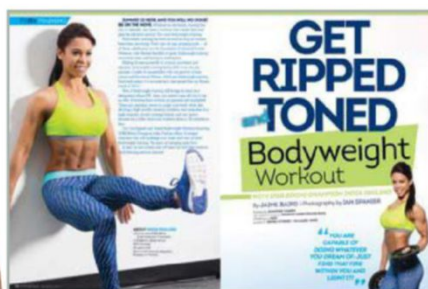


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WITH IFBB BIKINI PRO CALLIE BUNDY



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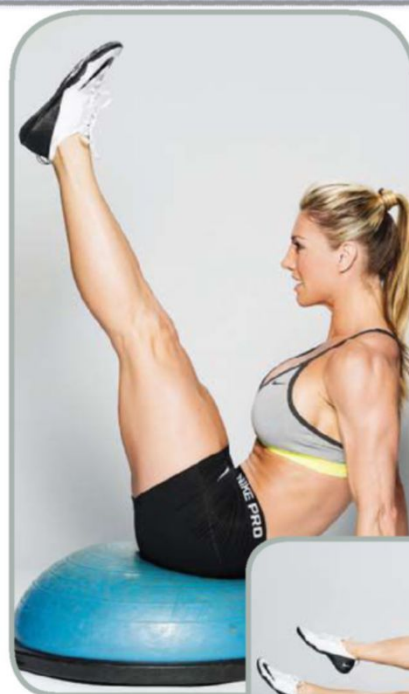
WITH IFBB BIKINI PRO SARA BACK



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ON THE COVER:
CALLIE BUNDY

Photo by IAN SPANIER
Hair and makeup by Laura Shelley
for Exclusive Artists Manmanagement using Dr. Hauschka
Styling by Elyse Blechman
Training apparel by Nike



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With Nicole Wilkins

YOUR BEST

By Jaime Baird

KNOW IFs ANDs or BUTTS

Featuring Amanda Latona

KEEP IT FRESH

With Ashley Kaltwasser

PERFECT FORM

With Jessie Hilgenberg

REAL STRENGTH

With Ava Cowan

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SUPPLEMENTS AND HEALTH**

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Allison Frahn

FIRE IT UP

Jessica James

NEW

BIKINI READY

with Justine Munro

G-FIT SERIES

Gina Aliotti

**FIT FAST:
25 MINUTE
WORKOUTS**

Jennifer Andrews

TRAINER'S CORNER

Callie Durbrow

**SETTING THE
RECORD STRAIGHT**
*with the Glute Guy
Bret Contreras*

ASK THE FIGHTER DIET GIRL
with Pauline Nordin

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AUGUST 2015

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BACK SQUAT ASSESSMENT

■ Squatting is an essential weight-training exercise that builds a strong foundation for power athletes. However, most people squat incorrectly because they've never been instructed properly or they are more interested in pushing big weights than developing good mechanics. A group of 14 distinguished scientists and strength practitioners combined their efforts to develop a back squat

assessment tool, which is a detailed checklist of the do's and don'ts of squatting. The checklist includes evaluation procedures for the position of the head, thorax, trunk, hips, knees, shin and feet, as well as movement mechanics during descent and ascent. These evaluation procedures can help athletes and coaches get the most out of this powerful exercise. (Strength and Conditioning Journal, 36: 4-27, 2014)



ROPE TRAINING IS A VIGOROUS CARDIOVASCULAR EXERCISE

■ Rope training involves vigorously undulating one or two large ropes using upper body muscles and stabilizing the body with the lower body and core muscles. It is an extremely popular functional training method used frequently in cross training programs such as CrossFit. Charles Fontaine from the University of Minnesota Duluth and Brad Schmidt from Creighton University in Omaha, Nebraska found that a 10-minute rope interval workout (10 sets of 15 seconds rope waving followed by 45 seconds of rest) increased heart rate to 163 beats a minute and metabolic rate 10 times above rest. Rope training is a vigorous functional training method that develops physical fitness. (Journal Strength Conditioning Research, 29:889-893, 2015)

AEROBICS INTERFERE with Strength Training

■ Most recreational athletes combine aerobics and strength training so that they can develop well-rounded fitness and not spend too much time in the gym. **A Brazilian study showed that the order of training was important for optimizing strength performance.** Performing either treadmill or stationary bike exercise prior to strength training decreased the quality of the strength training workout, with the stationary bike causing a greater decrease than the treadmill. Train for strength first and then practice aerobics. In other studies, Japanese researchers found that practicing aerobics after strength exercises was healthier for blood vessels. (Journal Strength Conditioning Research, 29: 1077-1082, 2015)

■ Suspension training, such as the TRX Suspension Training system, consists of two adjustable nylon strips with a handle and foot stirrup at each end. You attach the TRX to an overhanging bar, tree limb, pipe or doorjamb. It uses bodyweight as a resistance rather than relying on weights, hydraulics, elastic bands or pulleys. TRX exercises are closed kinetic chain, which means that the lower or upper body stays in contact with the ground during the movement. These exercises are only possible through coordinated muscle action working across many joints. Muscles supporting the spine (i.e., "the core") act as stabilizers that allow powerful motions in the upper or lower body and transfer force to the legs and arms. **Researchers from Hong Kong found that suspension exercises were effective for building the major abdominal muscles and lumbar multifidus muscles.** Suspension exercises were better core builders than other exercises they measured on stable and unstable support surfaces. (Journal Science Medicine in Sport, 18:189-194, 2015) »



Suspension Training EFFECTIVE FOR CORE BUILDING

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AND MIXES INSTANTLY



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Serious Trainers

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¹Subjects combining the core ingredients in MuscleTech® Premium Whey Protein Plus (creatine and whey protein) with a weight training program gained 70% more lean muscle than subjects using regular whey protein (8.8 vs. 5.1 lbs.). Read label before use. © 2015

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COPING WITH OVERTRAINING



■ Coaches and athletes, in their quest for better performance, follow intense training programs in the hope of gaining an edge over the competition. However, a fine line exists between programs that improve condition and those leading to overtraining. Overtraining is an imbalance between training and recovery. The consequences can be severe and include decreased performance, injury, depressed immunity and psychological depression. Training programs must be intense enough to improve fitness and skill, yet provide enough rest to ensure adequate recovery. **Chronically over-trained athletes who get injured or crash may never reach their former levels of performance.** Unfortunately, there is no single marker of overtraining. Instead, it is linked to a variety of symptoms that include decreased performance, overuse injuries, elevated resting heart rate, markers of muscle damage (i.e., creatine kinase), elevated or depressed cortisol, frequent illnesses, psychological depression and abnormal behavior. Hard work is important for increased fitness, lean muscle and strength, but overwork leads to breakdown and failure. (ACSM's Health & Fitness Journal, 19 (2): 4-5, 2015)

HIIT PLUS WEIGHT TRAINING BUILDS STRENGTH & ENDURANCE

■ Endurance training interferes with strength training because they trigger different biochemical pathways leading to improvements in either strength or endurance. HIIT training involves repetitions of short bouts of high-intensity exercise followed by rest. British researchers led by Jamie Pugh from Loughborough University found that combining resistance exercise with HIIT activated the mTOR pathway and suppressed myostatin, which results in accelerated protein synthesis. Combining HIIT and weight training in a single workout is a good way to build strength and endurance simultaneously. (Physiological Reports, 3(4): E12364, 2015)

DON'T STRETCH BEFORE YOU LIFT!



■ Until recently, practically any exercise book recommended pre-exercise stretching as part of warm-up. Training experts thought that stretching increased range of motion and reduced the risk of injury during the subsequent workout. That's changed. **Many studies have shown that static stretching before exercise decreases strength and power, and might actually increase the risk of injury.**

Marcos Sá from the University of Rio de Janeiro, Brazil, and colleagues found that static or ballistic stretching before weight training decreased strength endurance capacity during a weight-training program compared to a specific warm-up. This study was important because it showed that static stretching affects muscle endurance as well as strength and power. (Journal of Human Kinetics, 45: 177-185, 2015)

Multiple Sets More Effective Than One Set for Increasing Strength and Power

■ Health organizations such as the American College of Sports Medicine recommend that beginning exercisers perform one set of about eight exercises. Experienced athletes, on the other hand, typically perform multiple sets. Regis Radaelli from Brazil, and co-workers, found that three or five sets per exercise was superior to one set for building strength, local muscular endurance and lean muscle. The study lasted six months and included the bench press, lat pull, shoulder press and leg press. All test subjects decreased body fat and increased lean mass and vertical jump height. One set per exercise will help build strength, but multiple sets are better. (Journal Strength Conditioning Research, 29:1349-1358, 2015) ■

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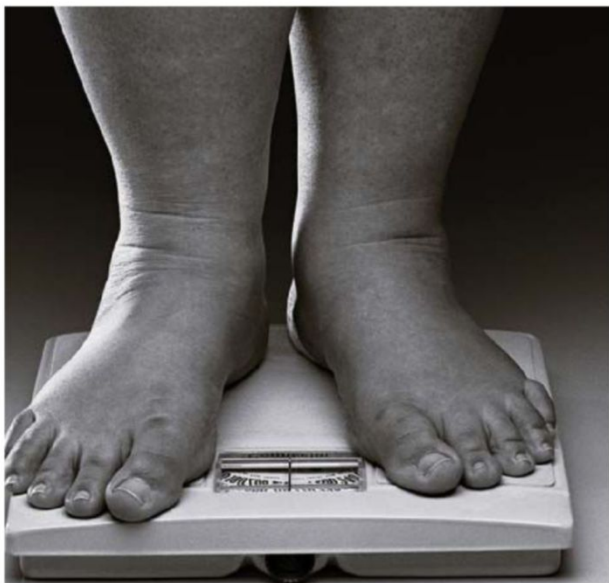
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High-Protein Intake **INCREASES ENERGY EXPENDITURE** During Overfeeding

■ The body tries to maintain a constant weight in response to over or underfeeding by changing its metabolic rate. A remarkable study from the Pennington Biomedical Research Center in Baton Rouge, Louisiana led by George Bray showed that energy expenditure in response to overfeeding was higher in people consuming a high-protein diet. Test subjects were overfed for 56 days by eating 40 percent more calories than normal. The increase in energy expenditure from overfeeding was related to the protein content of the diet but not to the excess calories. People gained weight consistently during the study and there was no evidence of an adaptation in metabolic rate. (*American Journal of Clinical Nutrition*, 101: 496-505, 2015)

WEIGH **EVERY DAY** TO LOSE FAT

■ Daily weighing is an important tool for weight loss, according to a study led by Dori Steinberg from Duke University and colleagues. They studied overweight men and women participating in a six-month-long weight-loss study. **Daily weighers lost about 15 pounds more than people who weighed less frequently.** They were also more likely to adopt weight-loss strategies involving dietary composition, caloric intake and exercise. Daily weighing helps keep you accountable. (*Journal of the Academy of Nutrition and Dietetics*, 15: 511-518, 2015)



VITAMIN D DEFICIENCY **LINKED TO OBESITY**

■ Vitamin D is synthesized in the body in a reaction involving sunlight. Vitamin D can also be consumed in the diet by eating fatty fish, mushrooms and supplements. A meta-analysis of 23 studies showed that vitamin D deficiency was 35 percent greater in obese than normal weight people. The relationship was independent of age or geography. Several recent studies have linked low vitamin D levels to poor bone health, muscle weakness, deficiencies in reproductive hormones, low aerobic capacity and increased body mass index (the proportion of weight to height). A study led by Caitlin Mason from the Fred Hutchinson Cancer Research Center in Seattle found that supplementing the diet with 2,000 international units of vitamin D per day had no effects on weight loss during a 12-month study. (*Obesity Reviews*, 16: 341-349, 2015; *American Journal of Clinical Nutrition* 99: 1015-1025, 2014)



HIGH IRON LEVELS LINKED TO OBESITY

■ High blood iron, as measured by ferritin, is a marker of poor metabolic health and is associated with an increased risk of heart attack. An Italian study found that high iron levels reflect total body inflammation. They found a relationship between body mass index (weight in proportion to height) and blood iron levels. Blood iron levels decreased during weight loss caused by low-calorie dieting. Blood iron levels were also linked to high blood triglycerides and abnormal liver function. (*Nutrition, Metabolism and Cardiovascular Diseases*, published online March 4, 2015) »

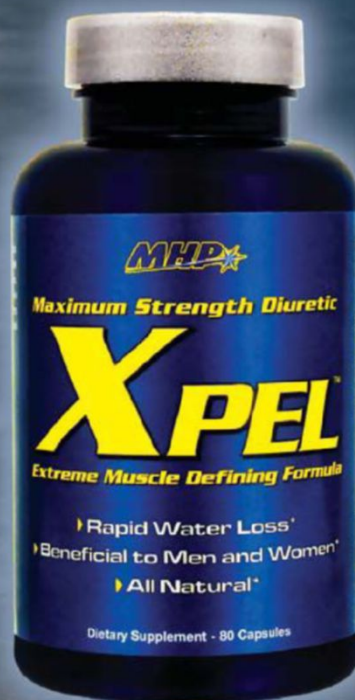


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CHEMICAL IN APPLES PROMOTES FAT LOSS

■ Ursolic acid is a chemical found in apples, basil, cranberries, peppermint, oregano and prunes. It is used in a variety of cosmetic products and can inhibit the growth of some types of cancer cells. A Chinese study on rats found that ursolic acid supplements reduced bodyweight, increased caloric expenditure and decreased fat levels in muscle. **Ursolic acid promoted fat loss by increasing the activity of uncoupling proteins in the cells, which causes fat loss by promoting heat formation.** Ursolic acid is also anabolic. A University of Iowa study in mice found that ursolic acid found in apple peels prevented muscle deterioration following fasting and spinal cord injury. Ursolic acid supplements also increased muscle mass in normal mice. The anabolic effect of ursolic acid is caused by increased insulin signaling in skeletal muscle and the suppression of gene activity linked to atrophy (decreased muscle size). Ursolic acid might speed fat loss and build lean muscle. (Molecular Nutrition & Food Research, published online May 5, 2015)



SUBSTITUTING PROTEIN FOR CARBS PROMOTES LONG-TERM WEIGHT LOSS

■ Glycemic load is a measure of how much a food increases blood sugar over time. Foods such as refined grains, starches and sugars have a high glycemic load and promote weight gain. Decreasing the glycemic load by increasing protein intake could have a significant effect on long-term weight control—according to a Harvard University study led by Jessica Smith. **Changing the dietary composition toward more protein and away from simple carbohydrates may be just as important as counting calories for weight loss.** Foods such as yogurt, seafood, skinless chicken and nuts are good choices for weight reduction. (American Journal of Clinical Nutrition, published online April 8, 2015)

High-Protein, Low-Calorie Diets Promote Weight Loss

■ High-protein diets are effective for preventing or treating obesity because they increase metabolism, suppress appetite and reduce caloric intake—according to a literature review led by Heather Leidy from the University of Missouri School of Medicine, and colleagues. Comparisons of weight-loss diets high in carbohydrates, protein or mixed nutrients consistently show that the high-protein diets are most effective for weight loss. As expected, high-protein diets are most effective in people who actually adhere to the weight-loss program. **High-protein diets contain between 1.2 and 1.6 grams of protein per kilogram of bodyweight.** Each meal should contain 25 to 30 grams of protein. (American Journal of Clinical Nutrition, published online April 29, 2015)

NEW ROLE FOR BROWN FAT IN THE CONTROL OF METABOLISM

■ Scientists have known about brown fat for years. However, it was only recently that we discovered its importance in human physiology. Unlike white fat, brown fat dissipates energy as heat instead of storing it as fat. Activating brown fat increases calorie burning, reduces whole-body fat and lowers blood sugar and blood fat levels. New research shows that brown fat also secretes chemicals that help regulate metabolism. Exposure to cold is the best way to increase brown fat stores. However, exercise can make regular fat cells more like brown fat, which would promote weight control. (Trends in Endocrinology & Metabolism, 26: 231-237, 2015) ■



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WHOLE GRAINS PROMOTE Longevity

■ Eating more whole grains is associated with increased longevity and a lower death rate from cardiovascular disease, according to a study of more than 110,000 people led by Hongyu Wu from the Harvard University School of Public Health. Death rates from cancers were not altered by whole-grain consumption. **Consuming whole grains may reduce the risk of premature death by 15 percent.** The study confirms the recommendations of the National Dietary Guidelines that people consume more whole grains in their diet. The study examined data from the Nurses' Health Study and the Health Professionals Follow-Up Study. They factored out the effects of age, body composition, physical activity and overall diet. The study examined data and death rates that occurred over a 25-year period. (JAMA Internal Medicine, published online January 6, 2015)

OMEGA-3 FATTY ACIDS IMPROVE ENDURANCE

■ Omega-3 fatty acids—found in fish, walnuts, soybeans, beef and shrimp—promote blood vessel health and reduce the risk of heart attack and stroke. Polish researchers found that omega-3 supplements improved endurance capacity in cyclists by increasing concentrations of nitric oxide by 8 micromoles per liter and boosting muscle blood flow by more than 5 percent compared to a placebo (fake omega-3). This study agrees with several investigations from the University of Tokyo, which found that supplementing omega-3-rich fatty acids boosted exercise efficiency. Subjects took a daily dose of 3.6 grams per day of the omega-3s EPA and DHA. (European Journal of Sports Science, 15: 305-314, 2015)

HIGH-PROTEIN DIETS PROMOTE WEIGHT LOSS

■ Diets containing 0.8 grams of protein per kilogram bodyweight are adequate for maintaining protein balance. However, high-protein diets (e.g., 1.5 grams of protein per kilogram bodyweight) benefit people losing weight and active people such as athletes and soldiers. **High-protein diets spare lean muscle during weight loss, help control appetite, enhance blood sugar regulation and optimize calcium absorption for healthy bones.** High-protein diets supply essential amino acids that activate protein synthesis, even in the face of low energy intake. Whey and casein protein are particularly important because they provide rapid and sustained delivery of essential amino acids (amino acids the body can't make). (Journal of Food Science, 80: A2-A7, 2015)



Cherry Juice REDUCES Upper Respiratory Problems AFTER Marathon Run

■ Upper respiratory infections are common following competitive marathon running. Extreme levels of exercise cause general body inflammation and suppress the immune system. British researchers found that marathon runners who took cherry juice after a race showed reduced inflammation as measured by levels of C-reactive protein, immunoglobulin A, immunoglobulin B and a reduced incidence of upper respiratory infections compared to a placebo (fake cherry juice). **Cherry juice is the real deal for protecting muscle tissue from damage during intense exercise ranging from marathons to monster weight-training workouts.** Chemicals in cherry juice, such as flavonoids and anthocyanins, prevent muscle oxidative damage and inflammation associated with exercise recovery. Cherry juice might be useful for reducing sports injuries, preventing upper respiratory infections and promoting recovery. (Journal International Society Sports Nutrition, 12:22, 2015) »

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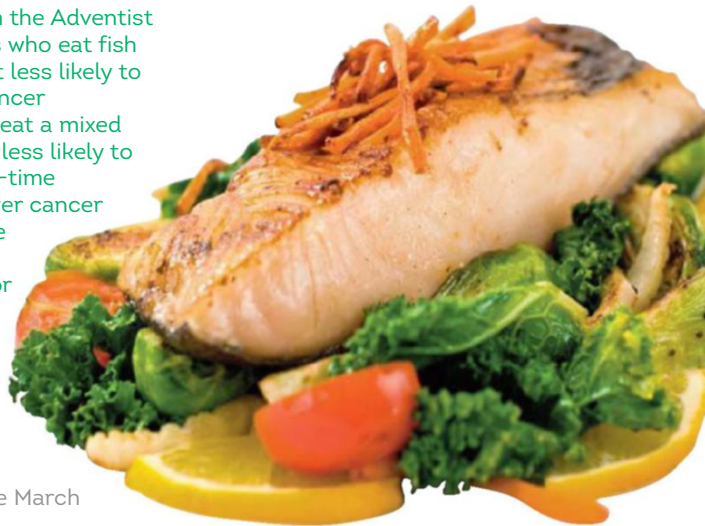
HIGH EGG DIET DOES NOT INCREASE CHOLESTEROL

■ The American Heart Association recommends that people restrict cholesterol intake to less than 300 milligrams per day. The average egg contains 187 milligrams. Consequently, eggs have been nutritional pariahs for more than 50 years. That's changing. A study led by Nicholas Fuller from the University of Sydney in Australia found that feeding type 2 diabetics a high egg diet for six weeks (two eggs per day)

had no effect on total cholesterol, LDL cholesterol, triglycerides or blood sugar control compared to patients consuming a low egg diet (less than two eggs per week). Eggs were particularly effective for reducing hunger sensations, which made it easier for patients to lose weight. Moderate egg consumption is part of a healthy diet. (American Journal of Clinical Nutrition, 101:705-713, 2015)

FISH-EATING VEGETARIANS HAVE THE LOWEST COLORECTAL CANCER RISK

■ According to data from the Adventist Health Study, vegetarians who eat fish are more than 40 percent less likely to suffer from colorectal cancer compared to people who eat a mixed diet. All vegetarians were less likely to get the cancer. Even part-time vegetarians showed a lower cancer risk than meat eaters. The study involved more than 77,000 people followed for seven years. Other studies have shown that exercise also cuts down on the risk of colon cancer. (Journal American Medical Association Internal Medicine, published online March 9, 2015)



Whey Protein Supplements DECREASE ABDOMINAL FAT

■ Whey protein supplements consumed with whole milk suppress the typical increase in blood fats that occurs following consumption of a high-fat meal— according to a study led by Mette Bohl from Aarhus University Hospital in Denmark and coworkers. They measured the blood fat response to a high-fat meal accompanied by supplements of either whey or casein protein. The researchers concluded that consuming whey protein with major meals could have a positive affect on cardiovascular disease risk factors. Drinking a whey protein shake with your lunch or dinner meals could keep belly fat under control. (American Journal of Clinical Nutrition, 101: 870-878, 2015)

Training with Reduced Carbohydrate Availability ENHANCES FITNESS

■ Interval training— repeated bouts of high-intensity exercise interrupted by short rest periods— increases fitness rapidly. Researchers from McMaster University in Canada found that subjects practicing interval training two times per day for two weeks gained fitness faster when they consumed only small amounts of carbohydrates between sessions. Interval training consisted of five sets of four-minute cycling at 60 percent of maximum effort followed by two minutes of recovery, practiced twice a day. Subjects consumed either 195 or 17 grams of carbohydrate between exercise sessions. Gains in peak power output were approximately 50 percent greater in test subjects consuming low amounts of carbohydrates between training sessions. These subjects were active but not well trained, so it is not known if these effects would apply to serious athletes or extend longer than two weeks. (International Journal Sports Nutrition Exercise Metabolism, published online March 26, 2015) ■

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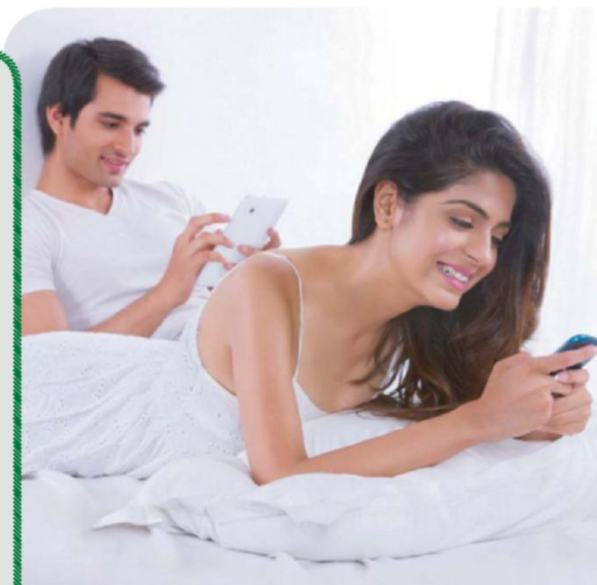
Scientists Developing ARTIFICIAL KNEE CARTILAGE

■ The knee menisci are two crescent-shaped fibrocartilages that cushion and help regulate fluid movement in the knee. They help distribute bodyweight and reduce friction during movement. They are often injured during sports, which can cause arthritis and deterioration of the knee joint later in life. Surgical repair or removal of these structures often leads to unsatisfactory results. **Scientists from Cornell and Columbia University have developed artificial knee cartilages using a 3-D printer and stem cells.** The procedure has been tested successfully in sheep. If it works in humans it could reduce the long-term risk of knee arthritis and joint replacement. (Wall Street Journal, May 6, 2015)

TABLETS AND SMART PHONES ARE ROBBING YOU OF SLEEP

■ In 1900, people slept nine hours a night. That declined to seven hours a night in the 1970s and decreased further today. Inadequate sleep is linked to poor concentration, anxiety, loss of energy, decreased learning ability, reduced attention to detail and motor vehicle accidents. How did sleep, which came so naturally, suddenly become a crisis? What is the smoking gun that explains modern sleep problems? Scientists found that the culprit is an unusual suspect hiding in plain sight—smartphones, tablets, backlit e-readers and computer screens.

These devices emit light, particularly blue light, that disturbs biochemical processes that promote sleep. They also increase exposure to electromagnetic radiation, which is linked to insomnia, headache and confusion. **The radiation from cell phones interfere with brain centers that secrete hormones and influence many aspects of body function.** Our bodies pay a price from surrounding ourselves with fancy smartphones, tablets and light-emitting gadgets—the price is lost sleep. (Proceedings National Academy Of Sciences, USA 112: 1232–1237, 2015)



Core Training Effective for REDUCING Back Pain

■ The core muscles in the torso provide a stable midsection vital to all motions and postures. The core muscles stabilize the spine and help to transfer force between the lower and upper body. They stabilize the midsection when you sit, stand, reach, walk, jump, twist, squat, throw or bend. A meta-analysis by researchers from Taiwan showed that strengthening core muscles, particularly deep muscles such as the quadratus lumborum, make movements more forceful and preserve a healthy spine to help prevent back pain. They tone muscles without damaging the fragile spinal disks and will give you a lean, toned midsection and functionally strong core muscles that work together flawlessly and maintain a pain-free spine that hopefully will last a lifetime. (Journal Physical Therapy Science, 27: 619–622, 2015) »

WEIGHT TRAINING IMPROVES SLEEP QUALITY

■ Inadequate sleep and poor sleep quality are linked to premature death, cardiovascular disease, diabetes and abdominal obesity. Regular endurance training improves sleep quality. Scott Collier, Jessica Alley and coworkers from Appalachian State University in North Carolina found that weight training helped people go to sleep faster and improved sleep quality. When they trained (morning, afternoon or evening) had no effect on sleep structure or nighttime blood pressure. **People need six to eight hours of good quality sleep per night for optimal health.** They concluded that weight training might be particularly beneficial for promoting sleep in people with bone or muscle loss and those with psychological disorders. (Journal Strength Conditioning Research, 29: 1378–1385, 2014)

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My PMS breast pain and swelling was so bad that I could not stand to touch my breasts and even the shower hurt. Now after using [ABT] I have no pain. — EA

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TRAINING AND COMPETING IN THE HEAT

■ A distinguished group of international environmental physiologists made recommendations for exercising in the heat:

- Athletes should acclimatize to heat by training in hot climates for at least 60 minutes per day for two weeks.
- Tank up before training or competing in the heat by drinking 6 milliliters per kilogram bodyweight every two to three hours until normally hydrated.
- Minimize weight loss during prolonged exercise in the heat by replacing fluids appropriately.
- Increase sodium intake when training or competing in the heat.
- Rehydrate after exercise by consuming enough fluids and electrolytes to offset 100 to 150 percent of lost weight. Rehydrating regimens should include sodium, carbohydrates and protein.
- Cooling methods include wearing ice garments, cold towels, water immersion and ingestion of cold fluids or ice. Precooling may benefit athletes involved in prolonged exercise.

Acclimatization, hydration and cooling are vital skills for athletes competing in the heat. (Scandinavian Journal Medicine Science Sports, 25 (Supplement 1): 6-19, 2015)



Exercise Fights Depression By STIMULATING SEROTONIN

■ Serotonin plays important roles in brain communications and can influence mood, fatigue and performance during exercise. Low brain serotonin levels increase feelings of tiredness and lethargy. A Korean study on rats found that endurance exercise reversed induced depressive states in animals by increasing serotonin levels and the activity of

serotonin receptors. **Exercising animals were less anxious and suffered from less depression.**

The researchers concluded that endurance exercise works like an antidepressant. Increasingly, psychiatrists are using exercise to treat their depressed patients. (International Neurology Journal, 19:27-33, 2015)



HIGH IRON LEVELS LINKED TO HIGH BLOOD PRESSURE

■ Poor diet, blood cell destruction from activities such as jogging, and menstruation can all lead to iron-poor blood. To compensate, many people take iron supplements and eat foods high in iron to boost intake. You can get too much of a good thing. High iron (ferritin) levels in men are linked to high blood pressure and heart disease—according to a study from Kyung Hee University School of Medicine in Korea. Humans have a limited capacity to get rid of iron, so it can build up if you consume too much. Excessive blood iron can promote tumor growth, speed cell membrane breakdown and increase the risk of heart attack. In women, high levels of serum ferritin (a good measure of total body iron stores) was related to increased risk factors of heart disease, such as high blood pressure, body mass index (the proportion of weight to height), total cholesterol and triglycerides, and low HDL cholesterol. (International Journal of Cardiology, 183:258-262, 2015)

Sleep Disturbances INTERFERE With Blood Sugar Regulation

■ Inadequate sleep is linked to poor blood sugar regulation—according to a literature review by researchers from Charles University in Prague, Czech Republic. **Chronic sleep problems also increase the risk of premature death from all causes and from cardiovascular disease.** The problem is particularly severe in people with obstructive sleep apnea, a condition caused by airway collapse during sleep, which decreases blood oxygen levels. Sleep disturbances increase the risk of type 2 diabetes and the metabolic syndrome—a collection of symptoms that include high blood pressure, abdominal fat deposition, abnormal blood fats and insulin resistance. Sleep disturbances interfere with signaling pathways that regulate blood sugar. See your physician if you snore or have problems sleeping. It could save your life. (Diabetology & Metabolic Syndrome, 7:25, 2015) ■

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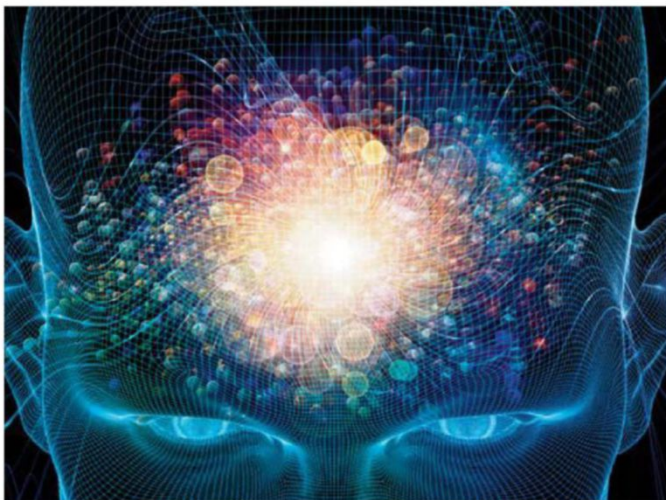
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TYROSINE BOOSTS BRAIN POWER



■ The brain and central nervous systems are the ultimate limiting factors of performance. The brain is the body's conductor that orchestrates movement, metabolic control and feelings of well-being. Tyrosine is an amino acid used by the brain to produce the neurotransmitters dopamine and norepinephrine, which are vital for controlling movements and optimizing energy levels. A review of literature by Dutch scientists concluded that tyrosine supplements improve brain function after a single dose. Long-term supplementation improved memory and information processing.

Tyrosine works by preventing depletion of vital brain neurotransmitters related to central nervous system fatigue. (Pharmacology Biochemistry and Behavior, 133: 1-6, 2015)

GLUCOSAMINE & CHONDROITIN SUPPLEMENTS PREVENT KNEE CARTILAGE LOSS

■ Glucosamine and chondroitin sulphate supplements reduced knee cartilage loss in some patients— according to a study by Canadian researchers. Cartilage loss is linked to knee arthritis and eventual joint replacement. This study is at odds with one led by Kent Kwok from the University of Pittsburgh, which found that people with mild to moderate knee pain did not benefit from taking glucosamine (1,500 milligrams per day) for six months. Several research studies found that glucosamine and chondroitin supplements promote the growth of cartilage cells. Cartilage is vital for functional, pain-free joints. **Worldwide, people spent nearly \$2 billion per year on glucosamine-chondroitin supplements.** They have a strong placebo effect— people want them to work, so they do. The best way to reduce arthritis pain is to exercise sensibly and maintain an ideal weight. We need more information before we can recommend these supplements. (Annals of the Rheumatic Diseases, 74: 547, 2015)

PROTEIN REQUIREMENTS FOR Active People

■ Protein is vital for building and repairing active tissues. Protein requirements range from 0.8 and 1.6 grams per kilogram bodyweight per day. A literature review led by Trisha McClain and colleagues from the University of New Mexico concluded that active athletes need protein that is easy to digest and rich in essential amino acids (can't be synthesized by the body). Protein sources include meat, dairy foods and vegetables. **Strive to consume 20 to 25 grams of protein per meal containing eight to 12 grams of essential amino acids.** Protein volume, composition and type are essential factors for optimizing protein metabolism. (Strength and Conditioning Journal, 37: 61-70, 2015)

MAGNESIUM SUPPLEMENTS REDUCE BLOOD PRESSURE

■ Hypertension (high blood pressure) is linked to coronary artery disease and kidney failure. Major risk factors include smoking, physical inactivity and high salt intake. Inadequate intake of magnesium may be a factor because of the mineral's effect on reducing stress on the heart muscle. **British researchers found that short-term administration of 300 milligrams per day was linked to 3 to 4 millimeters of mercury decreases in systolic and diastolic blood pressure (higher and lower blood pressure numbers) following intense exercise.** While this is a small effect, it could have a significant impact on public health. (Journal International Society Sports Nutrition, 12:19, 2015) »

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GREEN TEA EXTRACT LINKED TO LIVER TOXICITY

■ Green tea extract is an extremely popular supplement that people take to promote weight loss and increase energy levels. A study led by Herbert Bonkovsky from Wake Forest University School of Medicine reported that a chemical called epigallocatechin (EGCG) is toxic to the liver when taken in high doses. They reported that at least 20 cases of liver injury have stemmed from green tea extract supplements. They stated, however, that these findings do not apply to consumption of green tea because the EGCG levels do not approach those found in green tea extract supplements. We are in the dark about the dangers of herbal products such as green tea extract. While people from China have consumed green tea for centuries, it is only recently that we have been able to concentrate key ingredients in herbal products. (NeutraingredientsUSA.com, May 12, 2015)

GREEN TEA HAS NO LONG-TERM EFFECTS ON BODY COMPOSITION

■ Green tea extract is an extremely popular supplement that curbs appetite, increases metabolic rate and boosts energy levels in athletes and people trying to lose weight. This supplement appears to have few side effects other than elevated heart rate and small increases in blood pressure. However, a 12-week study in 60 young adult men and women showed that it had no effect on fat absorption, resting energy expenditure and body composition. The active ingredients in green tea include caffeine and epigallocatechin. Other studies have found that green tea has short-term effects on suppressing appetite and increasing metabolic rate (i.e., caloric expenditure). We can infer from this study that the effects of the supplement do not last. (The Journal of Nutrition, published online March 4, 2015)



BETA-ALANINE SUPPLEMENTS INCREASE PERFORMANCE DURING REPEATED PLYOMETRICS

■ Fatigue during high-intensity exercise is linked to acid buildup that interferes with chemical reactions necessary to continue exercise. Blood and muscles contain chemicals that buffer acids and prevent fatigue. Bicarbonate and alanine are two important buffers. Alanine is an amino acid that provides energy during exercise and prevents neuromuscular fatigue by increasing tissue carnosine levels. Carnosine is an important antioxidant that protects cells from destruction and buffers acids that cause fatigue. Alanine also helps supply energy during exercise. It is converted to blood sugar in the liver by a process called the glucose-alanine cycle. While alanine is not used to synthesize muscle tissue or enzymes, it influences exercise capacity—particularly endurance performance.

A study from Belgium found that supplementing beta-alanine (4.0 to 5.6 grams per day) for eight weeks improved performance of repeated squat jumps and counter movement jumps by 6 to 8 percent compared to a placebo (fake alanine). Beta-alanine caused a small improvement in repeated explosive power plyometrics. (Amino Acids, published online April 18, 2015)

CREATINE IMPROVES BRAIN FUNCTION DURING LOW OXYGEN SUPPLY

■ Brain function deteriorates rapidly when it is deprived of oxygen. This can occur at extremely high altitudes or during acute head trauma encountered in sports like football, Alpine skiing and soccer. **Creatine supplements protect the brain from low oxygen environments—according to a study by a research team from New Zealand.** Researchers subjected healthy adults to 10 percent oxygen for 90 minutes, which severely impaired brain function. Normal oxygen levels are slightly less than 21 percent. Pretreatment with creatine for seven days protected the brain against the effects of low oxygen. It is unknown whether creatine would be a good supplement for preventing brain injury in athletes. (Journal Neuroscience, 35: 1773-1780, 2015) ■

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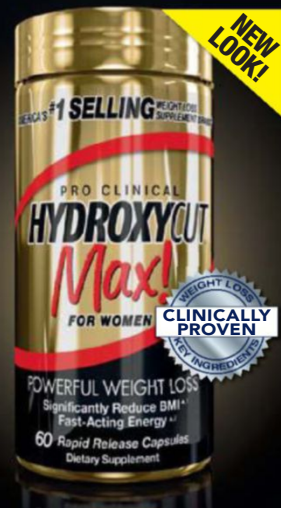
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What are some ways to keep my skin healthy and prevent breakouts when I'm exercising intensively?

Acne breakouts result from adherent dead skin cells, excess sebum/oil production, bacteria and inflammation. Sweat actually flushes internal toxins and cleans the pores. When the flow of sweat is blocked, the pores become plugged with the sticky skin cells, oil and toxins, leading to breakouts.

TIPS TO PREVENT AND TREAT BREAKOUTS:

• **Avoid makeup:** Makeup or lotions may block the flow of sweat. On a makeup-free face, sweat can exit the pores more easily. The only makeup I recommend is loose mineral powder makeup, such as Jane Iredale. Always look for products that state "non-comedogenic."

• **Wash:** Immediately after your workout, gently wash skin to remove any dirt and bacteria. When sweat containing toxins, oil and skin cells dries on your skin, it can feed bacteria and result in breakouts. I recommend the PCA Skin Blemish Control Bar or Derivations Purifying Cleanser with salicylic acid to gently exfoliate and prevent acne. For any red or inflamed breakouts, I recommend the PCA Skin or Haley Dermatology BPO 5 percent

cleanser. Leave cleanser in place to work for two minutes, but avoid scrubbing, as this will lead to red, inflamed skin. If you don't have time to wash, another option is to wipe your skin with salicylic acid pads or toner. Salicylic acid will gently exfoliate the dead skin cells so that they can't clog the pores and lead to acne.

• **Avoid Friction:** If you wear any type of gear when you sweat, make sure it fits well to avoid friction. I commonly will see breakouts on the forehead in people who wear hats, helmets or headbands or on the chin in football players or on the face where a phone is held for long periods of time. Friction irritates the follicles and doesn't allow for proper exfoliation and also allows for bacteria buildup in the area. If you cannot avoid certain gear, make sure it fits properly and is cleaned daily. Also, when drying off sweat with a towel, dabbing is better than aggressively rubbing.

• **Clothing:** Wear lightweight, moisture-wicking clothing and avoid tight clothing that may cause friction. The more your skin can breathe, the better. If only your shoulders are having a problem with breakouts, I would recommend wearing tank tops. Also, take a look at the mats you may be working on and ensure they are clean and wiped down prior to use.

• **Nutrition:** Since we know that sweat is a vital way that the body removes toxins, think about what you are consuming. Healthy fat (nuts, avocados, fish) and high-antioxidant, anti-inflammatory foods (colorful fruits and veggies) are essential in keeping your skin glowing. If you have recently started a weight-loss program, many of the toxins accumulated in your body's fat stores over the years will be purged as the fat is burned and

released into the system, often causing breakouts. Once those toxins are cleared, the acne will resolve, so stick with the healthy lifestyle changes. Unless medically contraindicated, I find that most acne patients will benefit by supplementing with zinc 25 milligrams daily, fish oil 2,000 milligrams daily and a probiotic.

• **Spot Treat:** Spot treat any active acne with tea tree oil or benzoyl peroxide. Both kill bacteria but can be irritating, so take it slow and see what works best for you.

In general, healthy sweating flushes toxins from the body and should reduce breakouts. Small modifications in your routine will eventually get both your body and skin in the best shape ever.

Have a skin-related question for Dr. Haley? Email your question to editor@fitnessrxwomen.com and you could see it answered in the next issue!

Dr. Jennifer Haley is a board-certified dermatologist with a degree in Nutrition Science from Cornell University. She has been an NPC bikini competitor, consultant to the US Capitol, and is the co-founder of the skin care line, Derivations- which offers complimentary skin consultations. She enjoys an active lifestyle in Scottsdale, AZ and Montrose, CO with her husband and three boys. »



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BEAUTY SLEEP

■ Research shows that sleep is important not only for your health, but also for your outward appearance. In one study involving 60 women who were categorized as poor sleepers, it was found that poor sleep quality is associated with signs of aging and diminished skin barrier function.

So it's no wonder that some spas and hotels are now offering sleep services. For example, in New York, the Yelo Spa in midtown Manhattan has a zero-gravity reclining chair. Lighting can also be adjusted according to the client's preferences. At another Manhattan location, the Benjamin Hotel, guests can take advantage of black-out drapes and eye masks, and also have 10 different pillows to choose from. The Centers for Disease Control and Prevention report that about 70 million Americans suffer from sleep disorders, so this is a trend that might become more prevalent. (Clinical and Experimental Dermatology, 40(1):17-22. doi: 10.1111/ced.12455., January 2015; Epub 2014 Sep 30.) ("NYC hotel, spa offer personalized sleep services," www.foxnews.com)

L'OREAL to Start 3-D SKIN PRINTING

■ Since the 1980s, L'Oreal has grown skin in laboratory cultures using donated skin cells. The process for growing a .5 centimeter test square takes about a week. But the bio-engineering company Organovo has created a bio-printer that can produce 3-D tissue samples and the method is much faster, which has led to a new partnership between the two companies that could change how cosmetics are tested.

Organovo's process uses their proprietary NovoGen Bioprint Platform. It works like an inkjet printer, laying down human skin cells in a hydrogel matrix that keeps them alive. "Some of the biggest potential advantages are the speed of production as well as the level of precision that 3-D printing can achieve," Guive Balooch, global vice president of L'Oreal's technology incubator told the The Washington Post. "L'Oreal's focus right now is not to increase the quantity of skin we produce but instead to continue to build on the accuracy and consistent replication of the skin engineering process."

While the L'Oreal website says they do not test on animals, could this be the start of animal-free testing for all? ("3-D printed human skin is L'Oreal's next big thing and it's not creepy at all," www.washingtonpost.com) ("L'Oreal to Begin 3D-Printing Skin," <http://news.discovery.com>)

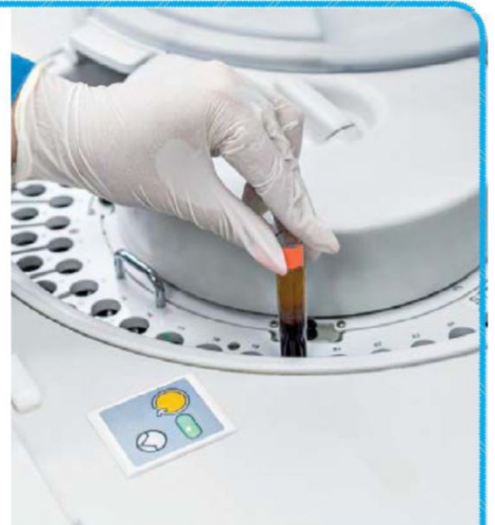
BOTTLED BEAUTY

■ Can you really find beauty in a bottle? Beauty drinks and powdered blends are becoming more common on the market. For instance, Beauty Dust, from the Los Angeles company Moon Juice, is a powdered herbal blend that is meant to promote glowing skin, hair and nails. There is also Reserveage Collagen Replenish Powder, which is a flavorless powder that dissolves in water or juice. The Beauty Chef line from Australia includes organic and biofermented ingredients for maximum health and to "deliver us to our most radiant selves" according to the website.

"There is already this concept ingrained in the culture that beautiful skin is achieved from the inside out," said Alicia Yoon, the founder and chief executive of the Korean beauty retailer Peach and Lily, told The New York Times. However, critics say that many of these products are no different than a multivitamin. ("A Promise of Beauty in a Bottle," www.nytimes.com)

Promising New Treatment for Thinning Hair?

■ According to the American Academy of Dermatology, about 30 million women in the United States have hereditary hair loss. The good news is that more treatments are being developed for women. One treatment, known as platelet rich plasma, is said to stimulate hair follicles. It involves drawing blood, spinning it in a centrifuge in order to extract the plasma, adding nutrients like protein, and then injecting the mixture on the top of the scalp. Dr. Carlos Wesley, a hair restoration surgeon in Manhattan, told The New York Times that women at his practice seem to respond better to this procedure than men, which may be because women suffering from genetic hair loss have more inflammatory cells around the follicles. However, clinical studies about the effectiveness of this treatment are inconclusive because different doctors use different mixes, according to The New York Times. ("New Treatments for Thinning Hair for Women," www.nytimes.com) ■



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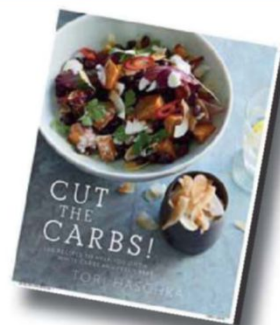
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CUT THE CARBS!

Recipes to Help you Ditch White Carbs and Feel Great

BY **TORI HASCHKA**, THE COUNTRYMAN PRESS, 2015



This month's Fat-blasting Recipes includes four excerpts from the book Cut the Carbs! 100 Recipes To Help You Ditch White Carbs and Feel Great by Tori Haschka, a Sydney-based food and travel writer. Since processed white flour and sugar are unhealthy staples of a typical American diet, the recipes in the book cut down on white carbs simply and deliciously with beans, whole grains, vegetables, lean meats and more. From lean summer feasts to "comfort" foods and desserts, the book has a recipe for everyone.

For more recipes like these, be sure to pick up the book on Amazon or at Barnes and Noble.

Serves 4 to 6

This granola takes the alchemic combination of cocoa, cherries, and dairy and puts them to a more restrained use than in a slice of torte. There are a few secrets to golden granola; chief among them is using egg whites to help the grains gather into plump clumps. Beyond that there's olive oil for superior crunch, ensuring there's a good mix of grains, and only adding the dried fruit after the grains have been baked. Be sure to add whatever nuts are your favorite—mine are macadamias and hazelnuts— but almonds and walnuts would also be grand. All that's left is to add a pinch or two of salt to curb the sweetness and keep this giddily delicious combination at the adult end of the spectrum. You may be eating cocoa for breakfast, but this layered treat is a long way from the domain of snap, crackle and pop.

INGREDIENTS:

1 cup rolled oats
 1/3 cup ground flaxseed
 1/3 cup dry unsweetened coconut
 scant 1/2 cup hazelnuts, roughly chopped
 scant 1/4 cup macadamias, roughly chopped
 2 teaspoons ground cinnamon
 3 tablespoons unsweetened cocoa
 1–2 teaspoons sea salt flakes
 4 tablespoons olive oil
 1/4 cup rice malt syrup or pure maple syrup
 1 egg white, beaten until foamy
 5 ounces dried cherries

TO SERVE

4 cups Greek yogurt and 7 ounces drained Morello cherries

EQUIPMENT

baking sheet lined with parchment paper

Preheat the oven to 285°F.

Mix all the dry ingredients together (except the dried cherries) in a big bowl.

Heat the olive oil and syrup together in a small pan until bubbling and pour the mixture over the dry ingredients in the bowl.

Mix everything together until well coated, then fold through the beaten egg white. Pour it onto the lined baking sheet and bake in the preheated oven for 45 minutes. Turn the granola over with a spoon, return it to the oven, and bake for another 25 minutes or until the nuts are crunchy. Let it cool for 15 minutes, then break up the clumps.

Combine the granola clumps with the dried cherries. Either put the granola in an airtight container to keep, or assemble the parfaits.

To assemble the parfaits, take 4 glasses or tumblers and layer them with yogurt, cherries, and granola, then more yogurt, cherries, and granola. Serve immediately.

BLACK FOREST SLOW GRANOLA PARFAITS



TANDOORI SALMON WITH SPICED LENTILS AND RAITA

Serves 4

INGREDIENTS:

4 fillets of salmon (about 6½ ounces each), skin on
1 tablespoon olive oil
sea salt

MARINADE

⅔ cup Greek yogurt
1 garlic clove, peeled and grated
¾-inch lump of ginger root, peeled and grated
1 teaspoon ground cumin
1 teaspoon ground turmeric
a pinch of sea salt
½ teaspoon freshly ground black pepper
1 teaspoon paprika
½–1 teaspoon cayenne pepper

SPICED LENTILS

1 tablespoon ground turmeric
1 teaspoon ground cumin
1 teaspoon cayenne pepper
1 teaspoon ground coriander
1 teaspoon ground cinnamon
1 teaspoon mustard seeds
1 tablespoon olive oil
1 onion, peeled and diced
2-inch lump of ginger root, peeled and grated
2 x 14-ounce cans of brown lentils, rinsed

RAITA

1 small cucumber, grated and squeezed with your hands to remove excess moisture
small bunch of fresh mint, chopped
1¼ cups Greek yogurt

TO SERVE

lemon wedges
handful of baby spinach
handful of cherry tomatoes, chopped

To make the marinade, combine all the ingredients together in a large bowl. Add the salmon fillets and coat the flesh in the marinade, leaving the skin clean. Cover and refrigerate for 30 minutes if you have time.

To make the spiced lentils, place all the spices in a skillet over medium heat and toast for 1 minute, or until they smell nutty. Add the olive oil, onion, and ginger and sauté for 3 to 5 minutes until the onion has softened, then tumble in the lentils and stir to warm them through.

To cook the salmon, take the fillets out of the marinade bowl and sprinkle the skin generously with salt to help stop it sticking to the pan. Heat the olive oil in a skillet over medium heat (or use a barbecue) and place the fillets, skin side down, in the pan. Cook for 3 minutes, then flip the fillets over and cook them for 2 to 3 minutes on the other side—most of the exterior of the salmon should be opaque except for about ½ inch halfway down. Inside, it will be gently blushing at its center, so if you prefer your salmon well done, cook it on the second side for an extra 2 minutes.

Let the salmon rest for 2 to 3 minutes before serving.

To make the raita, combine the ingredients together.

Serve the salmon on the lentils with a lemon wedges for squeezing over the top, the spinach, cherry tomatoes, and the raita on the side.

This combination has swiftly become a midweek staple for not only our family, but a few of the testers who helped out in the production of this book. Why? Because it's aromatic but not too onerous and it easily halves or doubles, depending on how many are sitting at your table. But I think it's mainly because eating these yellow-hued lentils and rosy pink salmon makes us feel good, and not just because of the links between turmeric and reduced rates of cancer and dementia. Here are some tips: if you have the time, try to marinate your salmon for 30 minutes to help bed down the flavors. I do this while I'm making the lentils and setting the table. And be sure to include the sides of raita, fresh tomato and a lemon wedge for squeezing— they really help to awaken the dish.



RHUBARB, APPLE AND BERRY SLOW CRUMBLE

The boundaries between a crumble, a crisp, a buckle and a slump are blurry. All seem to involve poached or baked fruit and a topping usually melding sugar, butter and a grain. When it comes to my dessert I'm less interested in definitional purity and more intrigued by having something that tastes terrific. The golden thing about this crumble isn't just the way that the tartness of the rhubarb is mellowed by segments of apple and oozing berries. Nor is it the wink of spice in the cinnamon or ginger, or the crunch from the slivered almonds and toasted oats. It's the other bits that make you feel good: the ground flaxseed and the sneaky smashed banana. An overripe banana mashed into the topping helps pull down the quantity of raw sugar and contributes both a delicious caramel-sweetness and a rustic chew to the topping. This may be categorized as a "slow crumble," but in our house, it never lasts long. Once again, while this is a delicious dessert, it's also worth considering as a celebratory brunch or breakfast option, with Greek yogurt instead of ice cream.

Serves 4

INGREDIENTS:

Scant $\frac{1}{2}$ cup unsalted butter, chilled and cubed,
plus 2 tablespoons for the fruit
1 cup rolled oats
generous $\frac{1}{3}$ cup ground flaxseed
scant 1 cup slivered almonds
2 tablespoons brown sugar
1 ripe banana, mashed
2 teaspoons ground ginger
2 teaspoons ground cinnamon
5 sticks (9 ounces) of rhubarb, cut into $1\frac{1}{2}$ -inch sticks
4 Pink Lady apples, peeled, cored, and cut into eighths
scant 1 cup blackberries
Greek yogurt, crème fraîche, heavy cream, or ice cream, to serve

Equipment

large, shallow baking dish, greased

Preheat the oven 350°F.

To make a crumble topping, put the scant $\frac{1}{2}$ cup butter, oats, flaxseed, almonds, sugar, banana, ginger, and cinnamon in a bowl. Use your fingers to mash everything together into a rustic tumble. It should be rough and lumpy. Refrigerate the topping until ready to bake.

Put the rhubarb and apple and half the blackberries in a saucepan with the 2 tablespoons butter and cook over medium heat for 10 to 15 minutes until the rhubarb and apple have begun to soften.

Transfer the softened fruit to the prepared baking dish and dot with the remaining berries. Scatter the crumble topping over the fruit, ensuring there are lots of craggy edges.

Bake the crumble in the preheated oven for 30 minutes, or until the top is bronzed and crisp. Serve hot with Greek yogurt, crème fraîche, heavy cream or ice cream. Or enjoy cold, for breakfast.



PEPPERMINT CHOCOLATE MOUSSE WITH PISTACHIOS

It's hard not to love a three-ingredient mousse. All that's required is a hot cup of tea, a few chunks of dark chocolate, and some egg whites. This recipe had a Goldilocks start in life. Two egg whites were too flat. Four muffled the taste of the chocolate. But three were just right. While this version uses peppermint tea, recalling the retro tastes of my parents' mint "After Eight" chocolates which were reserved for occasional dinner parties, you could easily recruit other flavors. Earl or Lady Grey tea would contribute some pleasing aromas, ginger tea would be a refreshing change or a long black coffee would give it a little extra get-up-and-go. Experiment to your heart's content. Something to bear in mind: this is a mousse that is even better the next day, making it the perfect thing to quickly prepare on a Thursday night if you have people coming over after work on a Friday.

Serves 2 but can easily be scaled up as needed

INGREDIENTS:

1 peppermint tea bag
scant ½ cup boiling water
14 ounces semisweet chocolate, chopped
3 egg whites
a pinch of salt
8 fresh mint leaves
2 teaspoons pistachios, toasted and chopped

Equipment

2 x 7-ounce ramekins

Steep the peppermint tea bag in the boiling water until the water is cool enough for you to hold your finger in it for 5 seconds. Remove the tea bag and discard it.

Put 3½ ounces of the chocolate and the peppermint tea in a small saucepan over low heat. Stir until two-thirds of the chocolate has melted, then take the pan off the heat.

Add the remaining chocolate to the pan and stir it, off the heat, until it has melted. This will help temper the chocolate a little, making it glossier and preventing it from becoming grainy.

Transfer the melted mint chocolate to a bowl and stir until it is smooth and has come to room temperature. Add the egg whites and salt and beat with an electric whisk for 4 to 6 minutes until ribbons form in the mixture.

Pour into the ramekins and refrigerate for 4 to 6 hours or overnight.

Serve the mousses topped with the mint leaves and chopped pistachios.



*“Follow your own
instincts,
no matter what.”*

FAB FLAT

*Everyone will tell
you what they think
you should be doing
or what they think
you are capable of,
but don't listen.”*

THE WORKOUT

This workout is effective because it uses a variety of tools and bodyweight moves to really hit your abs. Research has shown that training on stable surfaces may be more effective and activate the core better. However, it still a good idea to keep your body guessing, so this workout also includes a Bosu Ball V-up to really burn out that core!

THE SPRINTER:	3 X 15
BOSU BALL V-UPS:	3 X 15
STABILITY BALL CRUNCH:	3 X 15
PLANK CROSS BODY KNEE-INS:	3 X 12
SIDE PLANK WITH HIP DROP:	3 X 10
INCLINE CRUNCHES:	3 X 12
STABILITY BALL PASS:	3 X 12

ULOUS ABS

with IFBB Bikini Pro Callie Bundy

By LISA STEUER

Photography by Ian Spanier

Styling by ELYSE BLECHMAN

Hair and Makeup by LAURA SHELLY for EXCLUSIVE
MANAGEMENT using Dr Hauschka

Clothing and footwear by NIKE

Location: BEV FRANCIS POWERHOUSE GYM,
SYOSSET, NY

SWIMSUIT SEASON IS OFFICIALLY HERE!

**IF YOU ARE STILL WORKING ON
YOUR ABS OR NEED A SWITCH-UP WITH A
FEW UNIQUE EXERCISES TO KEEP YOUR BODY
GUESSING, THEN WE'VE GOT A GREAT
FLAT ABS WORKOUT FOR YOU!**

Even though summer is in full swing, you still have time to build those abdominal muscles and sculpt that sexy six-pack. And while we all know that diet is essential to revealing defined abs, it's also important to do a variety ab-focused exercises in order to build strength and really make that six-pack pop! That's why we have our cover model, IFBB Bikini Pro Callie Bundy, demonstrating our Flat Abs workout. Callie has always been very athletic from the time she was young, so she is the perfect role model for us. "Training is innate for me," said Callie. "It's something I've always done, will always do ... I love it."

Ready to sculpt your summer
abs? Let's go! >>

THE SPRINTER

Lie on your back with your arms at your sides and legs straight. Lift your legs and upper back off the floor, and sit up, bending one arm and bringing the opposite knee to the chest. Return to the starting position, keeping your legs raised.



BOSU BALL V-UP

Sit on a Bosu Ball with your hands behind you and legs straight out in front of you. Bring legs and torso together, keeping legs straight. Slowly lower and repeat.



STABILITY BALL CRUNCH

Perform a normal crunch holding a stability ball at your chest.



PLANK CROSS BODY KNEE-INS

Get in a plank position. Bring your left knee across your chest, then return to starting position before moving to next leg.



SIDE PLANK WITH HIP DROP

Get into a side plank position, with your top leg stacked over the bottom, legs straight, elbow bent. Engage your core while you drop your hips a few inches to the floor. Hold for a moment before pressing back up again.



INCLINE CRUNCHES

Lie on decline bench with feet fixed behind bar at top of the bench. Perform sit-up using control throughout the movement. »



STABILITY BALL PASS

Lie on the floor, holding a stability ball overhead with both hands, and your legs extended together. Engage your core and simultaneously lift your arms and legs off the ground, and transfer the ball to your feet. Squeeze the ball with your legs, and lower arms and legs back to the floor. Repeat, passing the ball to your arms.



“IT’S JUST WHAT I DO, LIKE BREATHING OXYGEN. I LOVE TRAINING, PERIOD.”



COVER MODEL Q&A

GET TO KNOW A LITTLE MORE ABOUT CALLIE AS SHE TALKS TRAINING, DIETING AND MORE!

FRX: Were you active when you were growing up?

CALLIE: I was a total jock. I played soccer, basketball and softball in high school. Then I went on to play Division 1 softball in college. And it was clear from early on, as noted in my 3rd grade journal entry, “I like sports, eating and sleeping and in my spare time I do my homework.” [laughing]

FRX: Why did you decide to start competing?

CALLIE: My training had always been for a purpose, whether it was to be able to turn on the inside fastball quicker or throw harder, etc. I was always working toward something, and I wanted a training focus again. I had always known people who competed, but as I was no longer competing in a sport, I thought I’d give it a shot. I knew it would give me a goal and a focus for my training. So I figured, hey at the very least, I’ll get into great shape and learn how to eat properly. And here I am three years later— guess I liked it!

FRX: What do you do when you are not competing?

CALLIE: I love to travel, and try to see my family as much as I can. Competing at this level takes such focus, I don’t always get to see them as much as I would like when I am.

FRX: What’s your favorite body part to train and why?

CALLIE: I love training legs. As Herb Brooks said, “Legs feed the wolf.” I couldn’t agree more and as a woman, it’s our strongest body part and I love feeling strong and moving heavy weights!

FRX: What’s something you’ve struggled with along your health/fitness journey, and how did you deal with it?

CALLIE: I am a taller competitor and am naturally pretty skinny, so being able to hold muscle and shape onstage has been an issue for me. When I stand next to girls who are shorter than me, it makes me look like I’m even skinnier, and I want to look curvy and full. For about the past two years I had trained the same, with a good amount of cardio and high-volume training. I decided that based on my body type, it may not be the ideal training for me, as I was no longer progressing. I wanted to get back to training like an athlete like I did in college— heavy and hard. When I trained for softball it was all about explosion and power. I wanted to get there again. So I looked around to see what coach was writing training plans like that. And I found C.J. Blake. I have been working with him for about eight months now and the results are incredible! I am the strongest I have ever been, which is so fun, and I feel like an athlete again.

FRX: What’s your favorite way to de-stress?

CALLIE: Tubby time! I love taking Epsom salt baths; I take one as often as I can. I like adding in different scents and oils. I light candles, put on relaxing music and just chill out before bed. It’s like a spa night every night.

FRX: Do you have a motto you live by?

CALLIE: Follow your own instincts, no matter what. Everyone will tell you what they think you should be doing or what they think you are capable of, but don't listen. Find something you are good at, it doesn't matter what it is, and stick with it.

FRX: What is your diet like?

CALLIE: I love my diet, to the point I almost hate calling it a diet because it's just what I eat and there isn't a meal I eat I don't like! I eat a lot of chicken, egg whites, shrimp, white rice, green beans are some of my faves.

FRX: How important is cardio for a six-pack? How much do you do a week and what kind of cardio do you do?

CALLIE: Ah, cardio, such a hotly debated topic. I don't do much cardio in the off-season, maybe some HIIT about two to three times a week at about 20-30 minutes. When I am competing I slowly ramp it up, based on where I'm at. Personally I believe in keeping cardio as low as possible—do the work with the weights and with the diet. Then use your cardio to fine tune.

FRX: How do you stay motivated?

CALLIE: People ask me this question all the time, I never have to consider this ... ever. It's just what I do, like breathing oxygen. I love training, period.

FRX: What accomplishment are you most proud of thus far?

CALLIE: It's not really so much of an accomplishment I guess, but I just try to be as real as I can with everyone. Especially on social media, I feel like the world is losing its authenticity, and being authentic is something that means a lot to me. It seems like everyone sells out these days, posting the most ridiculous things. So when people write and message me thanking me for keeping it real... THAT. That means the most to me, because they're not reaching out to tell me they think I'm fit or attractive, they're reaching out to me on a human level, and that means everything to me. And if they tell me I'm funny too; I won't be mad at that [laughing].

FRX: What's next for you?

CALLIE: I just want to continue to get better. I think right now I look the best I ever have. But the cool thing is, I know I can continue to improve. I know it's a pretty simple sounding goal, but much harder to achieve than say.



KEEP UP WITH CALLIE



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SCULPT YOUR ABS

Callie's Top Tips

IN ADDITION TO THE EXERCISES IN THIS FEATURE, HERE ARE SOME OTHER TIPS TO IMPLEMENT INTO YOUR AB-TRAINING PLAN!

- **DRINK ABOUT A GALLON OF WATER A DAY.** "IT'S GOING TO HELP YOUR BODY KEEP FLUSHING TOXINS AND GET RID OF EXCESS WATER THAT CAN COVER YOUR DEFINITION."
- **NUTRITION.** "FIND OUT WHAT WORKS FOR YOU AND STICK WITH IT. CONSISTENCY IS KING."
- **LIFT HEAVY WEIGHT FOR A STRONG CORE.** "THE MAJORITY OF MY CORE STRENGTH IS DEVELOPED THROUGH BIG LIFTS LIKE DEADLIFTS."
- **TRAIN YOUR ABS WITH SOME ISOLATION EXERCISES.** "TRY HANGING LEG RAISES OR SIT-UPS."
- **DON'T FORGET TO TRAIN YOUR LOWER BACK AS WELL.** "WEIGHTED HYPER EXTENSIONS ARE A GREAT COUNTER PART."

HEALTHY MIND

"REMEMBER, STRENGTHENING YOUR BODY IS JUST AS IMPORTANT AS STRENGTHENING YOUR MIND, IT ALL WORKS TOGETHER," SAID CALLIE, WHO ADDED THAT PART OF HER SUCCESS COMES FROM NOT TAKING HERSELF TOO SERIOUSLY. HERE ARE SOME MORE OF HER HEALTHY MIND TIPS:

- **BE HAPPY; YOU CONTROL THAT, NO ONE ELSE.**
- **EXERCISE AND TRAIN FOR YOURSELF, NO ONE ELSE.**
- **DON'T WORRY ABOUT BEING PERFECT, JUST TRY TO BE AS CONSISTENT AS YOU CAN FOR AS LONG AS YOU CAN.**
- **YOU'RE NOT GOING TO ACHIEVE A PERSONAL RECORD EVERY DAY, BUT SOMETIMES THOSE DAYS WHEN YOU'RE AT YOUR WEAKEST ACTUALLY MAKE YOU THE STRONGEST.**
- **LIFE IS HARD— HAVE FUN AND DON'T SWEAT THE SMALL STUFF.**
- **OWN EVERYTHING ABOUT YOURSELF.**
- **LAUGH OFTEN! ■**

SUMMER IS HERE, AND YOU WILL NO DOUBT BE ON THE MOVE.

Whether on the beach, touring the city or lakeside, you need a workout that travels light and gets the job done quickly. You need bodyweight training.

Bodyweight training has been around as long as humans have been exercising. Push-ups, sit-ups, jumping jacks ... all of these calisthenics are the foundation of physical fitness. However, over the last handful of years, bodyweight training went from basic and boring to sizzling hot.

Making fitness accessible to anyone, anywhere and anytime, bodyweight training leaves little room for any excuses. Couple its accessibility with the growth of boot camps and functional fitness, which put bodyweight training front and center, it's no surprise it was named the top fitness trend of 2015.¹

Now, if bodyweight training still brings to mind your elementary school P.E. class, you haven't seen all that it has to offer. Exercises have evolved, progressed and multiplied. There are countless moves to sculpt your body while also eliciting a high aerobic demand. Combine such exercises in a high-intensity circuit-training format, and you have a formula for a killer total body workout done in 30 minutes or less.

Our Get Ripped and Toned Bodyweight Workout featuring IFBB Bikini Champion India Paulino offers 10 unique exercises that will challenge your body and view of basic bodyweight training. No plain old jumping jacks here.

In fact, we are certain you will have fun with this workout while burning serious calories!

ABOUT INDIA PAULINO

2013 Arnold IFBB Bikini
International Champion
11 IFBB Pro Bikini Wins
BSN Athlete
28 years old
Born in Dominican Republic
Resides in Florida

GET RIPPED and TONED

Bodyweight Workout

WITH IFBB BIKINI CHAMPION INDIA PAULINO

By JAIME BAIRD | Photography by IAN SPANIER

Styling by JENNIFER TURNER
Hair and Makeup by SHARON CASEY/WILHELMINA
Clothing by NIKE
Location: METRO FITNESS • HILLIARD, OHIO

“YOU ARE
CAPABLE OF
DOING WHATEVER
YOU DREAM OF; JUST
FIND THAT FIRE
WITHIN YOU AND
LIGHT IT!”



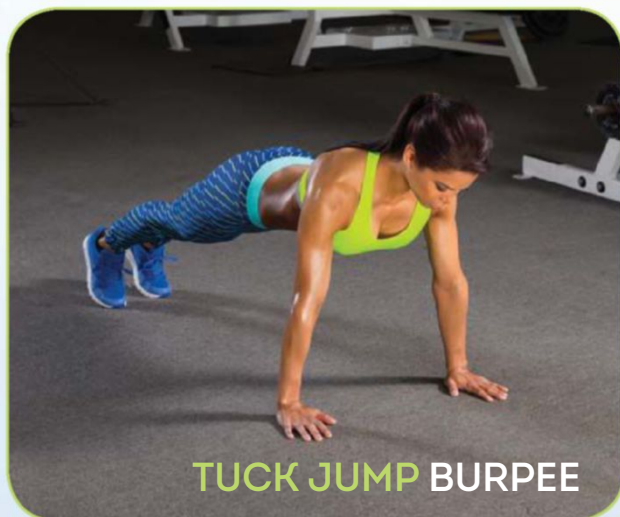
BURN, BABY, BURN

THE AMERICAN COUNCIL ON EXERCISE (ACE) COMPLETED AN EXCLUSIVE STUDY EXAMINING THE HEALTH AND FITNESS BENEFITS OF BOOT CAMP WORKOUTS FEATURING ALL BODYWEIGHT EXERCISES. THE WORKOUT INCLUDED BOTH AEROBIC AND STRENGTH MOVES LIKE THIS GET RIPPED AND TONED BODYWEIGHT WORKOUT. THE RESEARCHERS FOUND THAT THE AVERAGE EXERCISER BURNS ABOUT 9.8 CALORIES PER MINUTE IN A TYPICAL BOOT CAMP WORKOUT. ON AVERAGE, INDIVIDUALS WORKED AT 77 PERCENT OF HEART-RATE MAX (HRMAX), A LEVEL THAT WOULD ENHANCE CARDIOVASCULAR FITNESS ACCORDING TO THE AMERICAN COLLEGE OF SPORTS MEDICINE (ACSM). HOWEVER, BECAUSE BOOT CAMP WORKOUTS CYCLE INTENSITY THROUGHOUT, HEART RATES HAD PEAKS AND VALLEYS— THE HIGHEST BEING 91 PERCENT HRMAX. THE BOTTOM LINE? BODYWEIGHT WORKOUTS, WHEN DESIGNED TO CHALLENGE YOU AEROBICALLY AND RECRUIT LARGE MUSCLE GROUPS, CAN IMPROVE CONDITIONING, BUILD STRENGTH AND BURN 600 CALORIES PER HOUR!

THE WORKOUT

- Perform circuit style— completing one set of each exercise and then proceeding to the next.
- Complete three to four rounds.
- Minimize rest between exercises. Rest one to two minutes after each round.
- Perform reps with perfect form. If your form is suffering, slow down

EXERCISE	REPS/TIME
TUCK JUMP BURPEE	60 SECONDS
PIKE PUSH-UP	15 REPS
BULGARIAN SPLIT SQUAT	10 REPS, EACH SIDE
GLUTE BRIDGE	20 REPS
SINGLE-LEG MOUNTAIN CLIMBER	30 SECONDS, EACH SIDE
SINGLE-LEG FLOOR TRICEPS DIP	10 REPS, EACH SIDE
SIDE PLANK CRUNCH	10 REPS, EACH SIDE
PLYOMETRIC DEADLIFT	30 SECONDS, EACH SIDE
SUPERMAN	20 REPS
ALTERNATING LEG RAISE	10 REPS EACH SIDE
TOE TOUCH	10 REPS EACH SIDE



TUCK JUMP BURPEE



Get It Right

Directions and tips for completing the exercises in this workout.

1) TUCK JUMP BURPEE

Targets: TOTAL BODY, CONDITIONING

Stand with your feet together to start. Squat to place your palms on the ground. Jump your legs out to a plank position. Complete a push-up. Jump feet back in, stand up and jump in the air, pulling your knees to your chest. Land in starting position and repeat.

2) PIKE PUSH-UP

Targets: SHOULDERS

Begin in a plank position and walk hands in toward feet until your body forms an inverted "V" (similar to a downward dog). Rise up on toes and then bend elbows to lower head toward the ground. Then, press up. For more of a challenge, you can also perform a handstand push-up against the wall.

3) BULGARIAN SPLIT SQUAT

Targets: LEGS, GLUTES

Place one foot on the top of a bench positioned behind you. Lower into a lunge so that your knee is just above the floor. Drive up through that front heel using your glutes and hamstrings. For more of a challenge, add a jump to the end of the rep.

4) GLUTE BRIDGE

Targets: GLUTES, HAMSTRINGS

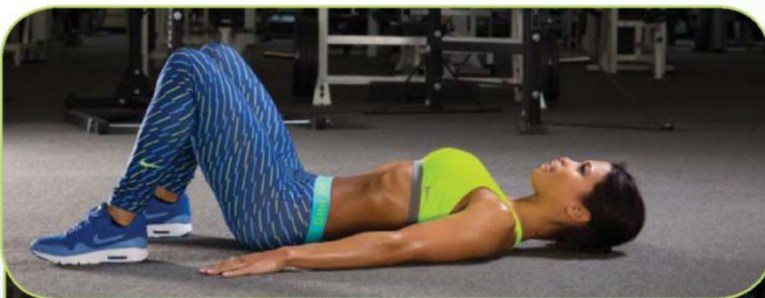
Lie on ground on your back. Bend knees and position feet about hip-distance apart. Pressing through heels, lift hips as high as possible while keeping your upper back and shoulders on the ground. Contract the glutes hard at the top. »



PIKE
PUSH-UP



BULGARIAN
SPLIT SQUAT



GLUTE BRIDGE

◀ SINGLE-LEG FLOOR
TRICEPS DIP



SINGLE-LEG MOUNTAIN CLIMBER

5) SINGLE-LEG MOUNTAIN CLIMBER

Targets: CORE, CONITIONING

Begin in a plank position. Lift one knee toward your chest and hold it. Then, bring the other leg forward and back as you would a typical mountain climber for the duration of the 30-second set. Then, switch legs and repeat.



6) SINGLE-LEG FLOOR TRICEPS DIP

Targets: TRICEPS, CORE

Seated on the floor with your knees bent and feet flat on the ground, position hands behind hips with fingers pointed toward feet. Lift hips up such that arms are extended straight and your body from shoulders to knees is in line. Lift one leg straight up toward the ceiling. Keeping hips level, bend elbows to lower into a triceps dip. Complete all reps with one leg extended, then switch legs and repeat the movement.



SIDE PLANK CRUNCH

7) SIDE PLANK CRUNCH

Targets: OBLIQUES

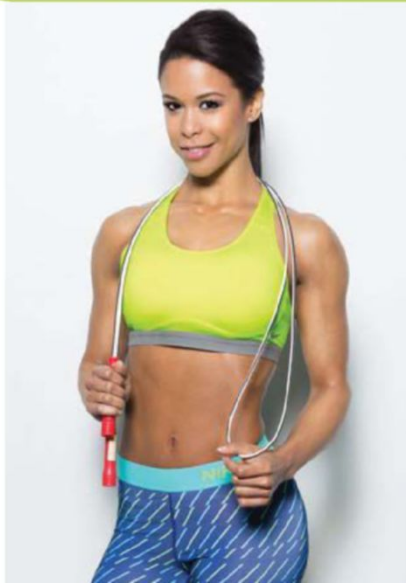
Lie on your side and prop yourself up onto your palm. Stack your feet and rest your weight on the outside of the bottom foot. Pick your hips up and position top arm behind head. Contracting the abs, bring the elbow of the top arm toward the ground and then back up toward the ceiling. Complete all reps on one side, then proceed to the other.



8) PLYOMETRIC DEADLIFT

Targets: HAMSTRINGS, GLUTES, CONDITIONING

Stand on the right leg and bend forward at the hips until the left leg and chest are parallel to the floor. In one explosive movement, lift the torso, swing the back leg forward, driving the knee up and jump in the air. Land back on the right leg and lower back to the starting position. Complete all reps standing on the right leg and then move onto the left leg. »



PLYOMETRIC DEADLIFT



ALTERNATING LEG RAISE TOE TOUCH

9) ALTERNATING LEG RAISE TOE TOUCH

Targets: UPPER AND LOWER ABS

Lie on the ground on your back with arms extended above your head. Lift left leg off the ground while simultaneously lifting your torso off the ground and reach the right arm toward the lifted leg. Lower down to start and repeat the movement with the opposite arm and leg.



10) SUPERMAN

Targets: LOWER BACK, GLUTES

Lie facedown on the ground with arms extended above head. Lift arms and legs off the ground by contracting your lower back and glutes. Lower down without completely releasing to the ground.

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SUPERMAN



Q&A WITH INDIA

India shares how she gets pumped for a tough workout, her best advice, an exciting new venture and more!



FOR MORE INDIA

You can connect with India online at LoveIndiaPaulino.com, Twitter (@IndiaPaulino), Instagram (@IndiaPaulino) and Facebook ([facebook.com/indiapaulino](https://www.facebook.com/indiapaulino)). To work with India, visit BloomThroughCoaching.com or email Training@LoveIndiaPaulino.com.

India can be contacted for appearances through www.fmg-fitnessmanagementgroup.com.

FITRX: Bodyweight workouts require that you bring the intensity to the workout. Do you have any pre-workout rituals to get prepared for a tough session?

INDIA: Oh ... my rituals are probably a comical sight to other drivers. Before any workout, I like to have "me time." "Me time" is driving to the gym, drinking coffee and blasting a song that gets me pumped, excited and focused. I dance and sing my butt off. (I'm a horrible singer by the way.) It helps get my mind where it needs to be so that I can kill my workout. I also drink AMINO X from BSN supplements during my workouts— it helps with my endurance and tastes so good! Watermelon is my favorite.

FITRX: Your approach to fitness has evolved over the years. What do you do differently now in comparison to years past?

INDIA: Over the years, I have learned that there are a million ways to get from point A to point B. It is about learning YOUR body and what works for YOU. Train smart— anything in excess is not good. At one point in my fitness career, I was doing three hours of intense cardio when prepping for a fitness competition (because I put my body in a position to need that due to overtraining.) Now I do 30-45 minutes if I am not in contest prep and one to one-and-a-half hours during contest prep. To get my body from needing the three hours to lose weight to only needing an hour or so took a lot of consistency, trial and error and patience.

FITRX: What advice would you give to women who want to be in shape like you?

INDIA: Get on it, sister! If you are having a hard time beginning the process, ask yourself: What is it in my life that is stopping me from accomplishing MY goals? First step is to have a goal, then make a plan and the last step is to work toward it. Getting started is usually the hardest part for most people. Motivate yourself to get on some type of plan, and yes, I said motivate YOURSELF! Self-motivation is the best motivation there is. You are capable of doing whatever you dream of; just find that fire within you and light it!

FITRX: You are working on an exciting new project in fitness. Can you share the details?

INDIA: YES! I am so excited! I am a professional life and wellness coach and have started my new business "Bloom Through Coaching." I always knew I was meant to help people. I was in law enforcement for 7.5 years to help people. Although I was able to touch many lives, I knew I could help people in a deeper way. One of my favorite things to do is to help remove negativity from the mind to make room for positive energy, clarity and stillness. It is very easy to get caught up in silly things that hold you back from what you want or from simply being happy. I offer online training plans for my wellness coaching clients who want to get in shape, and I offer contest preps for NPC/IFBB competitors and incorporate the life/wellness coaching aspect. I see competitors get so consumed in the competitive aspects of the sport that they lose sight of life, family, job, etc. I want to help them create a healthy lifestyle and not get caught up thinking that stepping onstage is ALL there is in life. I've been there in the past and know how hard it can be. ■

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BIKINI SEASON BLAST-

with IFBB Bikini PROs Ashley Kaltwasser & Juliana Daniell

**A HIGH-INTENSITY,
FAT-BURNING
PROGRAM
TO GET YOU
SWIMSUIT READY**



By JAIME BAIRD
Photography by GREGORY JAMES

WE KNOW YOU FITNESS FANATICS HAVE BEEN TRAINING HARD ALL YEAR. BUT, LET'S FACE IT, THERE'S ALWAYS A LITTLE "WORK" TO DO COME SWIMSUIT SEASON.

Tighten this, shape that... the finishing touches before the tropical getaway. We get it. To help you kick off the summer, we've designed a high-intensity total body training program that'll amp up your fat burning while shaping your bikini body. Ready to work? **LET'S DO IT!**

KICK OFF

Opener image: Shutterstock.com/ Mila Supinskaya

Hair and make-up by Jessica Colley

Clothing: Better Bodies, Asics

Gym location: Metro Fitness Hilliard, Ohio

WHAT TO EXPECT

LESS REST, MORE VOLUME.

We'll blast through calories by resting less and moving more. This program will challenge your cardiovascular and muscular endurance with intense supersets and short rest intervals. The key is to keep your heart rate high and push your limits without losing form.

PLYOMETRICS. The explosive bodyweight exercises like burpee box jumps, switch lunges and plyometric push-ups will amp up your fat burning, improve your overall athleticism and shape a strong and svelte bikini body.

COMPOUND MOVEMENTS.

The multi-muscle exercises like the dumbbell squat and kettlebell high pull will help to improve your overall strength and training capacity while increasing your caloric expenditure.

ISOLATION WORK. Exercises like the stability ball crunch and triceps dips target the abdominals and back of the arms directly, complementing the compound movements and plyometrics. These exercises add shape to specific key muscle groups.

COMBINATION EXERCISES.

Combining two or more exercises together like the dumbbell push-up row and the raise, curl, press allows you to hit multiple muscles in less time while adding more volume the workout.

HOW TO USE IT

14-DAY VACAY COUNTDOWN.

Before your bikini-baring holiday, commit to this high-intensity program to help you shape up.

7-DAY SWITCH-UP. Push through a plateau, or give yourself a break from your typical regimen for a week.

WEEKLY CHALLENGE.

Add one of the Bikini Blast-Off upper or lower body workouts to your training week for a boost of intensity.

SAMPLE TRAINING WEEK

MONDAY	LOWER BODY
TUESDAY	UPPER BODY, 30-MINUTE STEADY-STATE CARDIO
WEDNESDAY	HIIT CARDIO OF CHOICE
THURSDAY	LOWER BODY
FRIDAY	UPPER BODY
SATURDAY	HIIT CARDIO OF CHOICE
SUNDAY	REST OR YOGA

LOWER BODY WORKOUT

*MINIMIZE REST BETWEEN EACH EXERCISE IN A SUPERSET.
REST ONE MINUTE BETWEEN EACH SET.*

EXERCISE	REPS
SUPERSET 1: COMPLETE 3 SETS	
BARBELL HIP THRUST	10
JUMP ROPE	100 ROTATIONS
SUPERSET 2: COMPLETE 3 SETS	
SINGLE-LEG STABILITY BALL CURL	12, EACH LEG
BURPEE BOX JUMP	8
SUPERSET 3: COMPLETE 3 SETS	
DUMBBELL GOBLET SQUAT	12
SWITCH LUNGE JUMPS	10, EACH LEG
SUPERSET 4: COMPLETE 3 SETS	
DUMBBELL SINGLE-LEG DEADLIFT	10, EACH LEG
TUCK JUMPS	10
SUPERSET 5: COMPLETE 3 SETS	
WALKING LUNGE HOLDING PLATE OVERHEAD	10, EACH LEG
WALKING LUNGE (NO WEIGHT)	10, EACH LEG

SINGLE-LEG STABILITY BALL CURL

Lying on the floor in a supine position, place your heels on top of a medium-sized exercise ball. Lift hips up as high as you can, keeping all weight on the upper back and shoulders. Keeping hips up, lift one leg straight up in the air and curl the heel positioned on the ball to your butt and then extend your leg back to the starting position.



GET IT RIGHT

BARBELL HIP THRUST

Begin seated on the ground with a bench behind you. Place a barbell on your lap and lean against the bench. Lift your hips off the ground and position feet such that your shins are in line with your ankles. Then, thrust your hips up vertically—your shoulder blades and feet should be supporting your weight. Squeeze glutes hard at the top.



BURPEE BOX JUMP (not shown)

Stand with your feet shoulder-width apart facing a plyo box. Squat to place your palms on the ground. Jump legs out to a plank position. Jump feet back in, stand up, jump in the air and onto the box with both feet. Step down and repeat.





DUMBBELL GOBLET SQUAT

Holding a dumbbell by one end close to your chest, take a wider than shoulder-width stance and descend into the squat. Don't allow the weight to pull your chest forward—keep your torso upright and chest high. Pressing through heels, ascend back to the starting position.



SWITCH LUNGE JUMPS (not shown)

Begin in a lunge position and then jump in the air and land in a lunge with the opposite leg forward. Continue alternating lunges with each jump.

DUMBBELL SINGLE-LEG DEADLIFT (not shown)

Holding a dumbbell in the right hand at your side, bend your left knee slightly and lift the right leg off the floor a few inches. Once you have your balance, move your hips backward to initiate the movement and reach the dumbbell toward the left leg while allowing the right leg to lift behind you like a pendulum. Keeping your weight in your heel, rise back up using your hamstrings.



TUCK JUMP

Jump as high as you can and tuck your knees into your chest. Immediately explode into another jump.



WALKING LUNGE (Holding Plate Overhead)

Holding a plate over your head, begin with your feet together. Step your left foot forward and lower into a lunge. Then, pressing through the left heel, ascend out of the lunge and step the right foot forward and lower into a lunge. Continue alternating lunges. Be sure to keep core tight.

KEEP UP WITH ASHLEY

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Check out Ashley's "Keep it Fresh" column at FitnessRxWomen.com for her fun and flavorful fit living tips. You can also find her on Facebook (/BikiniProAshley), Twitter (@AshleyKFit) and Instagram (AshleyKfit). Ashley can be contacted for appearances through www.fmg-fitnessmanagementgroup.com.

UPPER BODY WORKOUT

MINIMIZE REST BETWEEN EACH EXERCISE IN A SUPERSET.
REST ONE MINUTE BETWEEN EACH SET.

EXERCISE	REPS
SUPERSET 1: COMPLETE 3 SETS	
DUMBBELL PUSH-UP ROW	10
MOUNTAIN CLIMBER	20, EACH LEG
SUPERSET 2: COMPLETE 3 SETS	
KETTLEBELL HIGH PULL	10, EACH ARM
WEIGHTED STABILITY BALL CRUNCHES	20
SUPERSET 3: COMPLETE 3 SETS	
RAISE, CURL, PRESS COMBO	10
STABILITY BALL PIKE	12
SUPERSET 4: COMPLETE 3 SETS	
SMITH MACHINE SUPINE ROW	12
SMITH MACHINE TRICEPS DIPS	15
SUPERSET 5: COMPLETE 3 SETS	
STABILITY BALL WINDSHIELD WIPERS	8, EACH DIRECTION
PLYOMETRIC PUSH-UPS	8-10



MOUNTAIN CLIMBER

Beginning in a plank position, bring one knee up to your chest and then quickly switch, bringing the other knee up to your chest. Continue alternating.

HIIT THIS!

Increase fat burning by adding HIIT cardio into your training week. Here are some suggestions:

CARDIO 1: INCLINE TREADMILL HIIT

Cardio 1: Incline Treadmill HIIT
WARM-UP: 5 minutes @ 4mph, 3% incline
Then, repeat the following 10 times:
RUN: 45-60 seconds @ 8.0-10.0 mph, 10% incline
WALK: 90 seconds @ 3.5 mph, 3% incline

CARDIO 2: ARC TRAINER HIIT

WARM-UP: 5 minutes @ moderate resistance and incline
Then, increase your resistance and incline and repeat the following 10 times:
SPRINT: 60 seconds @ as fast as you can go
RECOVERY: 60 seconds @ comfortable pace

CARDIO 3: YOUR CHOICE

Choose any equipment/method (i.e., bike, swim, stairs, sled push, row, outdoor sprint) that allows you to perform an all-out effort safely.
WARM-UP: 5 minutes
Then, repeat the following 10 times:
ALL-OUT SPRINT: 30 seconds
RECOVER: 90 seconds post-workout to help with recovery.

GET IT RIGHT

DUMBBELL PUSH-UP ROW

Get into push-up position, gripping dumbbells with feet wider than hip-width apart. Lower your body toward the ground by bending elbows. Press back up and then row one dumbbell up to the side of your chest. Lower the dumbbell, and then perform throw on the other side. That is one rep.





KETTLEBELL HIGH PULL

With feet a bit wider than shoulder-width apart, place a kettlebell on the ground between both legs and squat down to grip the kettlebell handle with one hand. Then, push through the heels to rise to standing, pulling the kettlebell upwards while the elbow drives up. Lower back down and switch arms.

WEIGHTED STABILITY BALL CRUNCHES

Sit on the stability ball with your feet flat on the floor, holding a weight at your chest. Walk your feet forward to lower your back onto the ball. Contract your abdominal muscles and curl your shoulders and trunk toward your knees. Lower and repeat.



RAISE, CURL, PRESS COMBO (not shown)

Holding plates or dumbbells, front raise the weight to eye level and then lower down. Now, bicep curl the weights up. From the top of the curl, Arnold press the weight up by turning your palms forward while you lift the weight above your head. Then lower back down to the top of the bicep curl and complete the eccentric portion of the bicep curl. That is one rep.



SMITH MACHINE SUPINE ROW

Position yourself underneath the bar grasping it with an underhand or overhand grip. The bar should be at chest level. Using your back, row your body up so that your chest almost touches the bar. The straighter your legs and lower the bar, the more challenging the row will be.

STABILITY BALL PIKE

Assume the plank position with the tops of your ankles elevated on the stability ball. Tighten your core and legs for balance and stability. Engaging your abdominals, pull your feet toward your chest until your hips are close to being in line with your shoulders. Inhale and slowly return to the starting position. Make sure you don't drop your back and hips when you return to the starting position.



SMITH MACHINE TRICEPS DIP

Lower the bar to about bench height, position your palms on the bar with fingers pointing toward you. Move your feet forward so that your glutes are right in front of the bar. Slowly lower your body by bending the elbows. Keep your chest up and back straight. Press up by straightening your arms.



STABILITY BALL WINDSHIELD WIPERS

Lie on back with arms out to sides with your palms down. Legs should be extended toward ceiling with the ball (stability or medicine) between your feet. Tighten abs and slowly lower legs together toward one side far as you can while keeping your shoulders pressed into the floor. Bring your legs back to center and then lower your legs to the opposite side.



PLYOMETRIC PUSH-UPS (not shown)

Get into a push-up/plank position. Bend elbows to lower chest to the ground. Press up explosively such that your hands leave the ground for a moment. Return to starting position and repeat. Make sure to keep core tight and keep hips in line with body.

BIKINI SEASON BLAST-OFF SUPPLEMENT STACK

ASHLEY

Gaspari Nutrition's Aminolast
- Lemon Ice

Gaspari Nutrition's Carnipure
- Pineapple

Gaspari Nutrition's Myofusion
Advanced Protein - Peanut Butter

JULIANA

APS Nutrition's Mesomorph
Pre-Workout - Pineapple

APS Nutrition's Acetyl L-Carnitine

APS Nutrition's Isomorph 28 - Smores

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Atlanta, Georgia

You can keep up with all of Juliana's events and happenings at Twitter (@JulianaDaniell), Facebook (IFBB Bikini Pro Juliana Daniell) and Instagram (JulianaDaniell).

TINY WAIST & TIGHT BUTT

Program

With IFBB Bikini Pro **SARA BACK**

By Lisa Steuer

SUMMER IS IN FULL SWING, BUT THERE'S STILL TIME TO TIGHTEN UP! After all, sculpted glutes and abs are perfect accessories for the summer season. To assist us in achieving this goal, we've recruited IFBB Bikini Pro Sara Back. This beauty from Finland made her competition debut in August 2013, won the Finnish Championships that year, and then earned her Pro card at the Arnold Amateur in Madrid— so she knows what it takes to sculpt award-winning glutes and abs.

Whether you need a little extra toning up or just a switch-up from your regular routine, this program is for you! Implement this workout into your exercise regimen and get ready to tone up before summer ends!

Photography by Ian Spanier

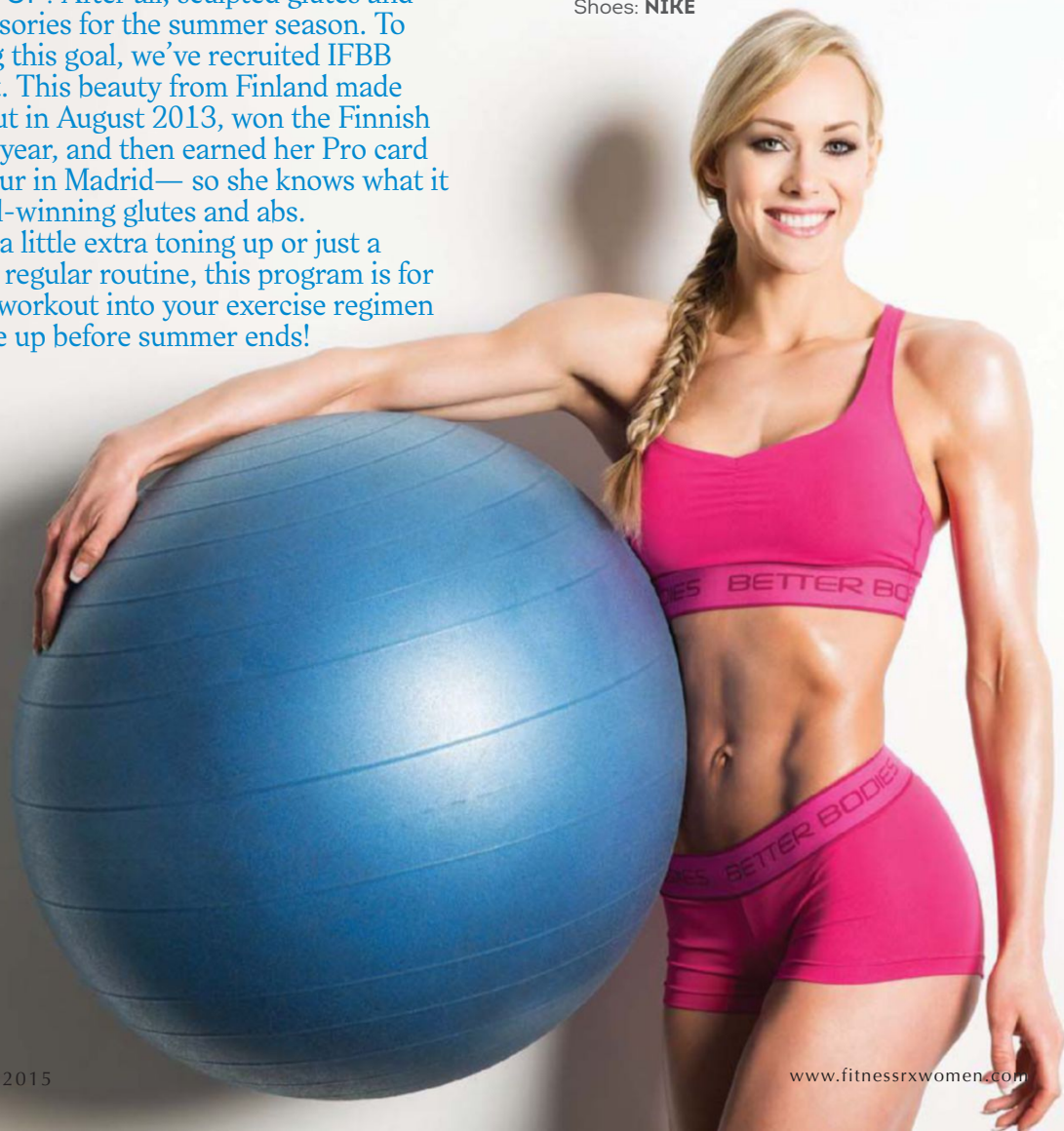
Makeup/Hair: **SHARON CASEY/WILHELMINA**

Styling: **JENNIFER TURNER**

Location: **METRO FITNESS • HILLIARD, OHIO**

Clothing: **BETTER BODIES**

Shoes: **NIKE**





The WORKOUT

This workout is effective because it involves a variety of lunges, deadlifts, cable exercises and more. All these exercises are ideal for activating the glutes and core.

Sara does core-training three or four times a week, including Pilates. "I believe this has helped me strengthen the transversus abdominis," she said. "Your lower back will also thank you in the future!"

During the off-season, Sara focuses on building her glutes as much as possible. "When the contest prep starts, I add in plyos for the legs once a week, which I think helps me to tone and tighten the butt a bit extra."

GLUTES

WEIGHTED LUNGES: 4 x 10, each leg

STIFF-LEG DEADLIFTS: 4 x 15

SINGLE-LEG STIFF-LEG

DEADLIFTS: 4 x 12, each leg

HIP THRUST: 4 x 20

CABLE BUTT KICKBACKS:
4 x 15, each leg

ABS

HANGING LEG RAISES: 4 x 15

RUSSIAN TWIST ON BALL:

4 x 15, each side

EXERCISE BALL PULL-IN: 4 x 20

**JACKKNIFE SIT-UP WITH
ROTATION:** 4 x 15, each side

PLANK: 4 x 1 minute

CABLE CRUNCH: 4 x 20

Great Glute EXERCISES

HIP THRUST: Sit on the floor with a barbell positioned over your shins and align your upper back across a secure padded bench or step, feet approximately shoulder-width apart. Roll the barbell over your thighs so it rests at your hips (if the bar causes discomfort, consider using a pad or towel around the bar). Brace your core and forcefully extend the hips until the torso is parallel with the ground and a hip-neutral position is reached. Hold the contracted position for a moment, and then return to the start position.

SINGLE-LEG STIFF-LEG DEADLIFTS: Have one leg slightly behind the other and hold a dumbbell on the same side as the back leg. Bend forward at the hips, raising the back leg, and then return to starting position.

RUSSIAN TWIST ON BALL: With your upper back on a stability ball, your feet on the floor and your hips nearly straight, extend your arms up. Turn your torso from side to side, with slow and controlled movements and a tight core, while keeping arms straight.

EXERCISE BALL PULL-IN: Begin on all fours in a push-up position with your feet on the ball. Engage your core and bring your knees toward your chest, with the ball rolling forward as your knees tuck under your body and you bring your hips toward the ceiling. Hold the position for a moment before returning to starting position. Keep your core and glutes activated through the whole exercise and keep your back straight.

*“Dream big ...
and then give
100 percent to
reach that dream.
You will be
surprised about
the result.”*

HIP THRUST



JACKKNIFE SIT-UP WITH ROTATION.

Sit on a mat and lift your upper body and legs from the floor as pictured. Your arms and legs should be straight and you are balancing on your glutes. Slowly lower your back and twist your torso to one side by moving your hand to the side, and open your chest. Hold this position for a one count and then crunch up back to the starting position. Alternate twisting to each side.

CABLE BUTT KICKBACKS.

Attach ankle strap from the low pulley cable. Stand facing the machine with knees bent, grabbing the machine frame for support. Kick your leg back as far as you can without arching your back, and concentrate on squeezing your glutes as you extend your hip.

CABLE CRUNCH. Position the cable machine pulley high and attach the grip bar. Kneel below the pulley. Grasp the bar and lower it down so that the bar is placed behind your head. Position your hips back slightly and allow the resistance from the cable to lift your torso upward a bit so that your spine is slightly hyperextended. Keeping the hips stationary, contract the abs and bend the waist. The elbows should move toward the thighs/knees, rather than straight toward the ground. Think of curling your torso toward your knees. Pause at the bottom of the movement and tense the abs hard. Inhale and slowly return to the starting position. Make sure to keep tension in the abs throughout the exercise.

HANGING LEG RAISES.

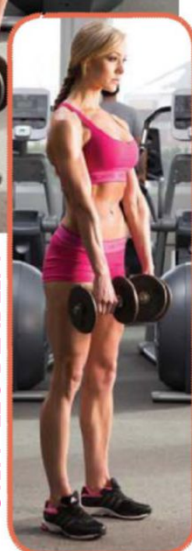
Hang on a bar and lift legs slightly above horizontal.

STIFF-LEG DEADLIFT.

Stand with feet just less than shoulder-width apart and knees slightly bent. Grasp a bar or dumbbells in your hands. Keeping your back straight and chest out, bend at the waist and lower the weight toward the floor. Use your glutes to pull yourself back up into starting position. It's important you keep your back straight and knees slightly bent throughout the entire movement. You should feel a stretch in your glutes and hamstrings. »



PLANK. You can do the standard plank, but also try variations to switch it up. Try it from your elbows and take turns lifting each leg for one minute. On your hands, you can also simultaneously lift the opposite arm and leg. Keep your glutes and abs activated the entire time.



STIFF-LEG DEADLIFT

GET TO KNOW SARA

Sara talks about staying motivated, her secrets for success and more!

FITRX: HOW DID YOU GET INTO FITNESS?

SARA: I have been into sports since I was 6 years old and have always loved competing. I played soccer, ran 100-meter hurdles, did the long jump, danced and played hockey, just to name a few. When I got older I had to choose a sport because I knew that I needed to focus 100 percent on one sport if I wanted to become successful. I was actually a good soccer player and played in the Finnish league for a couple of years, but in autumn 2007 I injured my knee and had to rehab my body for eight months. I tried to go back to the soccer field, but the motivation and self-confidence was not there anymore, so I decided to quit. Instead, I started lifting weights and tried to become stronger and more muscular. I became very interested in nutrition and wanted to know everything about weight training, too.

FITRX: WHY DO YOU ENJOY FITNESS SO MUCH?

SARA: What I love about fitness, besides training and nutrition, is that you can always be better. I love to see my body changing and getting stronger and better for every show I do. You can create your own body and choose exactly how you want to look and feel like.

FITRX: IN ADDITION TO COMPETING, YOU ALSO WORK AS A PHYSIOTHERAPIST. TELL US A LITTLE BIT ABOUT THAT.

SARA: I am a licensed physiotherapist, masseur and personal trainer. At the moment, I mainly work as a personal trainer and Bikini coach, but the physiotherapy studies have helped me a lot when it comes to getting to know my body. It is important to train and build up the body from the inside, not just focus on the visible parts. In fact, the most important muscles to train when it comes to preventing injuries and building a strong body are the smallest muscles around the spine and the joints. The deep core especially has to be strong to prevent back injuries and pain.

I love my job as a Bikini coach and a personal trainer. My sister and brother (we are actually triplets) and I have recently founded our own company and fitness team, Trifinity Training. We are coaching about 15 athletes on their journeys toward their first competitions in 2015.

FITRX: DO YOU HAVE A LIFE MOTTO THAT YOU LIVE BY?

SARA: Not a specific motto, but I always recommend for people to dream big, bigger than they might believe is possible at first, and then give 100 percent to reach that dream. You will be surprised about the result.

FITRX: WHAT'S YOUR ADVICE FOR WOMEN WHO WANT TO GET IN SHAPE LIKE YOU?

SARA: First of all, don't rush. You have to give your body time to change and find a balanced lifestyle. Set long- and short-term goals. Make sure to focus on building a strong body from inside out, both mentally and physically. Train to become healthier, happier and a better version of yourself.

FITRX: WHAT DO YOU HOPE TO ACCOMPLISH IN THE NEXT YEAR?

SARA: I hope (and will try my best) to win a pro show and qualify for Olympia 2016. ■

“Train to become healthier, happier and a better version of yourself.”

SARA'S DIET FOR A DAY

MEAL 1: 1/3 CUP OATS, 1 WHOLE EGG AND 3 EGG WHITES, 1/2 CUP BERRIES,

MEAL 2: 4 OZ CHICKEN, 1/3 CUP BROWN RICE, 1 CUP GREEN BEANS

MEAL 3: GREEN SALAD, 3 OZ SALMON, RED PEPPER, 1 TSP OLIVE OIL

MEAL 4: 1 LOW-CARB WRAP, 4 OZ TURKEY, 1 TSP OLIVE OIL

MEAL 5: SPINACH LEAVES, 3 OZ SWEET POTATOES, 4 OZ CHICKEN, CHERRY TOMATOES, 1/2 APPLE

MEAL 6: 1 SCOOP PROTEIN POWDER, 1 TBSP PEANUT BUTTER

BEFORE WEIGHT TRAINING: SCITEC NUTRITION AMINO MAGIC (APPLE FLAVOR) AND 100% CREATINE

POST-WORKOUT: SCITEC'S WHEY PROTEIN PROFESSIONAL

DURING CONTEST SEASON: SHREDEX FAT BURNER, AND CLA BEFORE MORNING CARDIO.



FOR MORE SARA

Website: www.sarabackfitness.com

Instagram: <https://instagram.com/sarabackfitness/>

Facebook: www.facebook.com/sarabackfitness



I'VE BEEN WORKING OUT MY LEGS FOR MONTHS NOW, BUT PROGRESS HAS BEEN SLOW AND I'M GETTING REALLY DISCOURAGED. I FEEL LIKE EVERY TIME I LOG ONTO SOCIAL MEDIA THAT EVERYONE IS LEAPS AND BOUNDS AHEAD OF ME. IS THERE SOMETHING I SHOULD BE DOING TO MAXIMIZE MY RESULTS?

A lack of progress can definitely be frustrating and a bit discouraging. I'm sorry that results are coming slower than you would like. Without seeing you in person and being able to assess your current regimen, I would suggest that you really focus on perfecting your technique when exercising. Proper form is essential to get the results you're after. You'll want to be sure to work through a full range of motion with each move, and it's a good idea to visualize the muscles you are working. That mind/muscle connection will help you achieve full contraction.

Next, make sure you are choosing the right resistance. Going too light won't tax the muscles enough to stimulate growth. Just be sure to maintain proper form as you begin to increase the amount of weight you're lifting. If you are looking to shed some body fat on your lower half, be sure to keep your diet as clean as possible and incorporate about 30 to 45 minutes of cardio three to five times a week. Choose activities like running, kickboxing, spinning or walking on an incline to help speed fat loss and reveal leaner, stronger legs.

I'M THE MOTHER OF TWO TWIN BOYS, AGE 8, WHO ARE BOTH REALLY ATHLETIC AND ENGAGED IN EVERY SPORT YOU CAN IMAGINE. MY QUESTION IS, WHEN SHOULD I GIVE MY BOYS SPORTS DRINKS? THEY SEE OTHER KIDS DRINKING THEM AT THEIR GAMES AND CONSTANTLY ASK FOR THEM. IS THERE ANY BENEFIT OVER WATER?

It sounds like you already know the importance of keeping your kids hydrated during sports, practice or even hot days. If you're like me, I can remember the big orange peel smiles during soccer games as a kid. They tasted like the greatest thing on earth, especially on a hot Texas day. The reason oranges were used in addition to water is that they help replace some of the carbohydrates and electrolytes lost during vigorous exercise. A sports drink or juice mixed with water can do the same thing, but some of those sports drinks contain high amounts of carbohydrates, sugar and calories. Keep that in mind when deciding on whether or not to give your boys sports drinks. Flooding their systems with excess fuel if they aren't playing or practicing hard isn't ideal. Make sure the activity is intense enough or just rely on everyday water and make sure they stop and drink every 15 to 20 minutes.

I'M RUNNING MY FIRST HALF MARATHON NEXT MONTH AND AS THE DATE APPROACHES, I'M GETTING MORE AND MORE NERVOUS. I'M WORRIED THAT I AM GOING TO HATE IT AND REGRET THE COMMITMENT I'VE MADE TO MY FRIEND TO DO IT. ANY WORDS OF WISDOM FOR THE BIG DAY?

It's fantastic that you've made a commitment to your friend to run a half marathon. With about 13 miles in a half marathon, most average runners can complete that in about two and a half hours. Obviously, this requires stamina, so I hope you've been training for it and are able to comfortably run or walk at least five miles about four to five times a week. If not, I'd really suggest you focus on increasing the duration of your daily run to improve your stamina.

As for the day of the race, dress comfortably, wear sunscreen and possibly a hat. Don't try out a pair of new shoes. If you'd like a new pair, buy them now so that they are broken in by race time. When the gun sounds, be sure to start out slowly, you don't want to peter out too early. Instead, set a pace that you think you can maintain the entire run. If anything, if it ends up being too slow, you'll know for your next race that you can pick up the pace. Also, on race day don't experiment with food. Eat the same pre-run meal that you usually do and if you don't normally use sports drinks, avoid those too. Water should be sufficient but you'll want to stay well hydrated throughout the race, so never bypass the water stations.

Finally, be sure to have fun. On race day, your goal is to finish smiling and with a sense of pride and accomplishment. I hope the half marathon goes better than expected and leaves you with wanting to do it again. Happy running! ■



Have a question for Jamie? E-mail it to editor@fitnessrxwomen.com.

JAMIE EASON MIDDLETON IS A FORMER NFL CHEERLEADER AND A FIGURE COMPETITOR. JAMIE HOLDS A BACHELOR'S DEGREE IN COMMUNICATION AND HAS APPEARED IN HUNDREDS OF MAGAZINES BOTH AS A MODEL AND A CONTRIBUTING WRITER. AS CREATOR OF THE POPULAR LIVEFIT TRAINER, JAMIE HAS HELPED HUNDREDS OF THOUSANDS OF PEOPLE REACH THEIR FITNESS GOALS.

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Jamie Eason

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Photo: Peter Z. Jones

I NEED SOME ADVICE TONING MY TRICEPS. WHAT DO YOU SUGGEST?

First off, let's ditch the tepid term "toning"! Try this: Let your arm hang down and feel your triceps right now. Squishy, right? Now flex it. Hard(er), right? Voila, tone. Tone is a partial state of contraction. What you are looking for is definition. Topography, that's what you seek. A relief map of the backwoods of your arms! For that, you need to decrease body fat. Clean up your diet and get some sleep. Now get your training house in order! Try heavy compound movements (close-grip bench press, dips) and don't worry about getting "big" or, "BIG." You won't. I want to write "you can't," but my editors might freak. Train like you are trying to get big and you will get toned. How's that? It works, promise.

I REALLY WANT TO GET THAT DEFINED AND SCULPTED LOOK IN MY SHOULDERS. WHAT'S THE BEST APPROACH? AND HOW LONG DOES IT REALISTICALLY TAKE?

See question about triceps, and just do overhead presses instead of close-grip presses and wide-grip upright rows instead of dips (wide-grip upright rows because they hit more deltoid than close-grip upright rows, which target more trapezius). Other than that, make sure you work all three heads of the shoulder adequately (anterior, medial, posterior) with a variety of raises to the front, side and rear, keep your diet clean, get your sleep, and watch those shoulders split and separate like a bell pepper!

I EAT HEALTHY (VEGGIES, LEAN MEATS, ETC.), BUT EXPERIENCE BLOATING AFTER MEALS, SO I FEEL LIKE I'M NOT SEEING RESULTS EVEN THOUGH I'M WORKING HARD. WHY DOES THIS HAPPEN, AND WHAT CAN I DO TO RELIEVE IT?

Sounds like your results are "inflated"... HAHA! Sorry, sometimes they're just for me. Back to you now; without knowing your whole story, I would say that this could be one of a few things:

1. You are eating too much.
2. You are eating too fast.
3. You are not properly masticating your food.
4. You need to add some digestive enzymes to your meals.
5. You have some sort of intolerance to what you are taking in and should ask a nutritionist.

Regardless, your results post-deflation are real and should not be discounted. Take the time to figure this out because what you are doing is on point and you deserve to feel that way. I'm not just gassing you up. Sorry, couldn't resist.

WHAT DO YOU THINK IS A BETTER METHOD FOR FAT LOSS—MEASURING MACROS OR COUNTING CALORIES? OR BOTH?

Don't confuse combining with quantity. Both are important! As is timing—timing of the macros, as is timing of the quantity! There are many books on these subjects and more and I can tell you from experience that they all will yield results if you stick to them over a period of time. So with that in mind, what CAN you stick to? Decide, or better yet, figure out, what you can realistically do and go for it. If calorie counting is too tough, then learn to eyeball it. If macro measuring is too complicated to eyeball, then plan the meal ahead and prep it. On a side tip, I would suggest reading up on intermittent fasting and giving it a shot. Research and results are pretty compelling. You have nothing to lose but body fat.

I'M ON A TIGHT BUDGET BUT TRY TO EAT AS HEALTHY AS POSSIBLE. ANY TIPS OR MUST-HAVE FOOD ITEMS THAT YOU CAN SUGGEST?

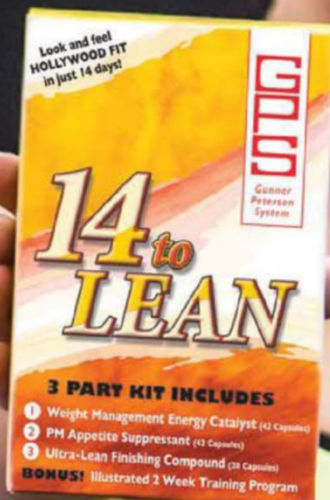
I'm a big fan of jicama if it's available. It has the crunch with-



out the calories and it won't bite into your budget. Apples do it for me as well and they won't break you. I love egg whites as a protein source (easy for your body to assimilate as well) and they are easy to cook or to mix in other foods for texture. Healthy doesn't have to come with a huge price tag if you avoid the higher end, boutique markets. Pay for the name of the food, not the name of the store. ■

GOT A QUESTION FOR GUNNAR?
EMAIL IT TO:
EDITOR@FITNESSRXMAG.COM

GUNNAR PETERSON IS A BEVERLY HILLS-BASED PERSONAL TRAINER WHOSE CLIENTS INCLUDE CELEBRITIES, PROFESSIONAL ATHLETES, AND EVERYDAY PEOPLE. CERTIFIED BY THE NATIONAL STRENGTH AND CONDITIONING ASSOCIATION AND IS A GRADUATE OF DUKE UNIVERSITY, GUNNAR HAS MORE THAN 20 YEARS OF EXPERIENCE IN THE FITNESS INDUSTRY AND REGULARLY OFFERS HIS EXPERT ADVICE IN NUMEROUS PUBLICATIONS AND IN TELEVISION APPEARANCES. FOR MORE INFORMATION, VISIT WWW.GUNNARPETERSON.COM.



KEEP IT SIMPLE

"This program is for people who don't know where to start, have hit that plateau, or have a specific deadline for an event; whether it's a **PHOTO SHOOT, MOVIE SCENE, TRAINING CAMP, WEDDING, SCHOOL REUNION...whatever!**"

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Targeting **DIFFERENT** Gluteal Regions

Two of the most common questions I receive regarding glute training is, "How do I target my upper glutes?" and "How do I target my lower glutes?" The answer to these questions is somewhat complicated because 1) it's not possible to activate the lower glutes without activating the upper glutes, 2) it is possible to activate the upper glutes without activating the lower glutes, and 3) some of the most effective glute exercises highly activate the upper and lower portions simultaneously. Furthermore, many individuals want to know if they can target the inner or outer glutes as well. Let's see what the research has to say about this topic.

FAST- AND SLOW-TWITCH FIBERS

In 2006, McAndrew et al. used laser-based mechanomyography to study six regions of the gluteus maximus: upper outer, upper inner, middle outer, middle inner, lower outer and lower inner divisions. The researchers saw no differences between inner versus outer gluteal fiber function. However, they found that the upper region displayed the longest contraction time, indicating that it contains more slow-twitch fibers and is more involved in postural tasks compared to the lower region, and that the lower region displayed the shortest contraction time, indicating that it contains more fast-twitch fibers and is more involved in dynamic tasks.

This jives with the findings of both Lyons et al., who found that the lower gluteus maximus was more involved than the upper gluteus maximus during stair climbing, and Karlsson and Jonsson, who found that the upper gluteus contracted independently from the lower gluteus maximus during frontal plane hip abduction (raising the leg out to the side). Each of the three studies mentioned here are acute mechanistic studies; there are currently no longitudinal training studies investigating the effects of different exercises on actual upper and lower glute muscle growth.

THE BEST EXERCISES

Since there isn't much published research to go by, let's discuss some of the unique findings that I've discovered in my glute lab utilizing electromyography. In examining 13 trained women, I discovered that 10-rep maximum loads in the back squat elicited mean upper and lower gluteus maximus activation of 29 percent and 45 percent of maximum voluntary contraction, respectively, whereas 10-repetition maximum loads in the barbell hip thrust elicited mean upper and lower gluteus maximus activation of 69 percent and 87 percent of maximum voluntary contraction, respectively. This indicates that the barbell hip thrust does a much better job of activating the gluteus maximus than the squat, especially in the upper region.

However, what about other exercises? Based on eight years of conducting various experiments, I would recommend the following. If seeking maximum hypertrophy in the upper glutes, perform barbell hip thrusts, back extensions, cable kickbacks, band hip thrusts and single-leg hip thrusts. If seeking maximum hypertrophy in the lower glutes, perform barbell hip

thrusts, back extensions, cable kickbacks, band hip thrusts and single-leg hip thrusts.

Please note that these lists are identical, as these exercises consistently show the highest levels of glute activation in both the upper and lower regions. If seeking upper glute hypertrophy independent of lower glute hypertrophy, perform side lying hip abduction, cable standing hip abduction and lateral band walks. If seeking lower glute hypertrophy independent of upper glute hypertrophy, perform squats, lunges and Bulgarian split squats.

CONCLUSION

Many women wish to target their outer glutes because they mistakenly believe in spot reduction, which is the false notion that body fat is burned in the localized regions of the body that are activated. Even so, it is not possible to target the inner or outer regions of the glutes since the fibers activate identically from left to right along the length of the gluteus maximus fibers.

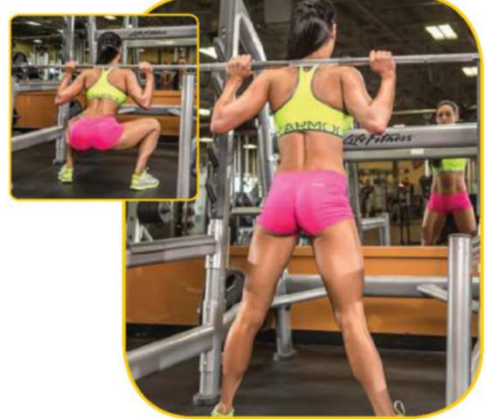
More research is needed to determine the most effective exercises and training methods for targeting specific regions of the gluteus maximus. However, it is indeed possible to target the upper glutes independently from the lower glutes. This is achieved by performing exercises that raise the leg out to the side, which can be done in the side lying position or in the standing position using cables or bands. It is not possible to target the lower glutes independently from the upper glutes, however, single and double leg squat patterns activate the lower gluteus maximus more heavily than the upper gluteus maximus.

The most efficient way to work the gluteus maximus is by focusing on variations of hip thrusts, back extensions and kickbacks, since these movement patterns activate the upper and lower glutes to the highest degree. ■

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Photos of Ashley Matthews by Gregory James



6 WAYS TO KICK YOUR SUGAR HABIT

Sugar is probably one of the most addicting substances that's out there today, and if you are someone struggling with this addiction, I can guarantee you are not alone.

Eating sugar causes serotonin, dopamine and endorphins to be released, which all contribute to making us "feel good." Since we all want to feel good, we begin associating eating sugar with feeling good and our sugar cravings increase. Sugar actually stimulates the same brain receptors as heroin and morphine (sugar rush!) and it interferes with the hormones that let us know when we are full.

If you have a diet with a lot of sugar, kicking the sugar habit may cause withdrawal symptoms such as headaches, fatigue and irritability. Part of this is due to the yeast, parasites and bacteria in the digestive system and other parts of the body that are fed by sugar.

While many foods naturally contain sugar, you can experience significant health risks from adding too much to your daily diet, with weight gain being just the icing on the cake. It can also lead to insulin resistance, central obesity, depression and other health risks over time.

So, if you're trying to kick your sugar habit, try these six ways to get started.

1. Read the ingredients on food labels. When you're serious about actually detoxing from sugar, you may not actually be getting rid of all the foods in your diet that contain sugar. Look for words that end in "ose" as a clue to sugars, like dextrose, or words that include syrup, molasses or honey. All these can be added sugar ingredients. Don't assume just because the product doesn't taste "sweet" that it doesn't have any added sugar (for example— items like dressings and condiments, trail mix, yogurt, granola, crackers and bread).

How much is too much? Stick with less than 40 grams per day (there are naturally occurring sugars or fructose in fruits and veggies that are GOOD to have in moderation).

2. Eat more natural foods. One of the reasons why people turn to sugar is that regular food doesn't satisfy their cravings. If you're not eating real foods (foods that grow on trees, in the ground or come from an animal) on a regular basis, then you're going to find it hard to give up sugary foods. Instead, buy natural foods that do not contain preservatives or additives (if you can't pronounce the ingredients, it is probably not the best choice). Spend a little extra time cooking and you'll start to notice the difference in your satiety, which will help you stay on track.

3. Add fruit to your meals. Fruit is naturally sweet and also full of nutrients and fiber. So, you can trick your taste buds into thinking that they're getting something sweet by shutting down your cravings before you reach for dessert. Try adding some blueberries or bananas into your oatmeal instead of brown sugar or a few slices of pineapple to your grilled chicken. Use your imagination and don't be afraid to use fruit in your diet to help you with your plan!

4. Increase your protein. Many people eat foods high in sugar and simple carbs because they find it gives them an energy boost to make it through the day. It does do this, but the flip side is that it often leads to a sugar crash from the ups and downs of your blood sugar levels. Protein throughout the day starting with breakfast can help provide your body with the energy it needs on a stable basis all day and help regulate your mood as well. This would include eating foods like meats, nuts, beans and dairy. As your body adjusts to this stability, sugar cravings will reduce.

5. Plan on how much and when to indulge. If you just feel like you are being too deprived and life is not worth living without your favorite sugary foods, then at least pick the best time and conditions in which to indulge. Pick one day a week to enjoy a sundae or frozen yogurt, or enjoy it post-workout when your body needs a higher glycemic carb for recovery. Save your snack for around half an hour after your workout and eat a protein source along with it.

6. Cope with stress. Stress can cause the brain to tell the adrenal glands to release adrenaline and cortisol, causing blood sugar levels and blood pressure to increase. That's why when we are stressed we often crave sugary and fatty foods. Resist the urge and go for whole-grain foods with fiber instead. Complex carb foods help keep your energy level stable throughout the day so you don't feel the need to get the sugar rush when you start dragging. Be sure to also get enough good quality sleep, exercise, maintain a social network of friends or family and make time for relaxation activities such as yoga or meditation to help reduce stress. ■

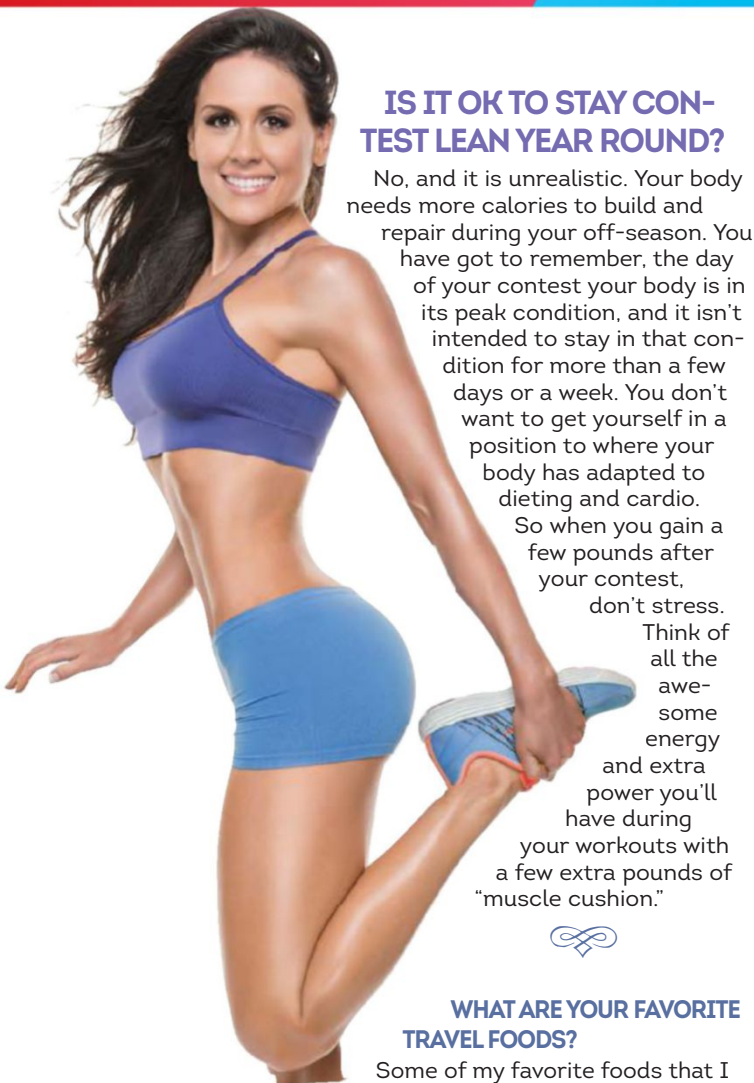
Become a member at www.nicolewilkins.com and follow me along my entire preparation for the IFBB Figure Olympia where I will be training to retain the title for hopefully the 5th time!

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Nicole Wilkins is three-time Figure International and four-time Figure Olympia champion, as well as a Met-Rx sponsored athlete and certified personal trainer. For more with Nicole, check out "The Fit Life" series on www.fitnessrxwomen.com. You can also follow Nicole on Facebook, and Twitter: @Nicole Wilkins.



● BY ASHLEY KALTWASSER



IS IT OK TO STAY CONTEST LEAN YEAR ROUND?

No, and it is unrealistic. Your body needs more calories to build and repair during your off-season. You have got to remember, the day of your contest your body is in its peak condition, and it isn't intended to stay in that condition for more than a few days or a week. You don't want to get yourself in a position to where your body has adapted to dieting and cardio. So when you gain a few pounds after your contest, don't stress. Think of all the awesome energy and extra power you'll have during your workouts with a few extra pounds of "muscle cushion."



WHAT ARE YOUR FAVORITE TRAVEL FOODS?

Some of my favorite foods that I like to bring with me when traveling are: pre-packaged chicken breast packs, turkey and beef jerky, Gaspari Nutrition MyoFusion Advanced Protein Powder, single-serve envelopes of plain oatmeal, dried edamame, 100-calorie packs of cashews, single-serve almond butter packets, Quest protein bars, Mio drink enhancers, single-serve packets of Walden Farms dressing, rice cakes, kale chips. These food items are not quick to perish and are easily carried on a plane.



MY HAMSTRINGS ARE OVERDEVELOPED IN COMPARISON TO MY GLUTES. WHAT SHOULD I DO?

I would try doing some donkey kicks with ankle weights, cable kickbacks with pulse at top, side lunges, skater jumps and also some work on the hip abductor machine would be beneficial as well.



CAN YOU PROVIDE A GOOD SPRINTING/CARDIO WORKOUT TO DO OUTSIDE IN THE SUMMER?

This one brings me back to my old college track days. Try this: On a track, sprint 100 meters all out (the straightaway). Jog for 50 meters moderately and then finish with walking 50 meters (the curve). Repeat six to eight times.

CAN YOU GIVE AN EXAMPLE OF A GOOD "CHEAT" MEAL THAT WON'T SET YOU TOO FAR OFF TRACK FROM YOUR DIET?

Some of my favorite modest cheat meals are: 6 to 8 oz steak with white potato; Chipotle burrito bowl (easy on the cheese and sour cream); Mediterranean chicken or steak kabobs with tzatziki sauce and a small side of pita and hummus.



WHAT IS YOUR OPINION ON FASTED CARDIO?

I think it's great for some people who are really trying to burn off stubborn body fat, especially those early birds and morning people out there. Do I do it myself? Very rarely. Why? Because honestly, the first thing on my mind is food when I wake up! I am the type of person who needs at least a small meal to get my day started and function. If I do participate in early morning cardio, I like to at least have a protein shake (I use Gaspari Nutrition MyoFusion Advanced). In conclusion, yes, I do believe it's easier to tap into your fat stores with fasted cardio, but I don't think it's for everyone. ■

Have a question for Ashley? Email it to editor@fitnessrxwomen.com.

IFBB Bikini Pro Ashley Kaltwasser is the 2014 Bikini Olympia Champion. Ashley believes that serious fitness doesn't have to be boring. Be sure to check out Ashley's "Keep It Fresh" column on FitnessRxWomen.com, where she shares ways to keep your training and nutrition fun and flavorful. Follow Ashley on Twitter @AshleyKFit and Facebook. For sponsorship, appearances, etc., contact Fitness Management Group.

FitRx CoolDOWN

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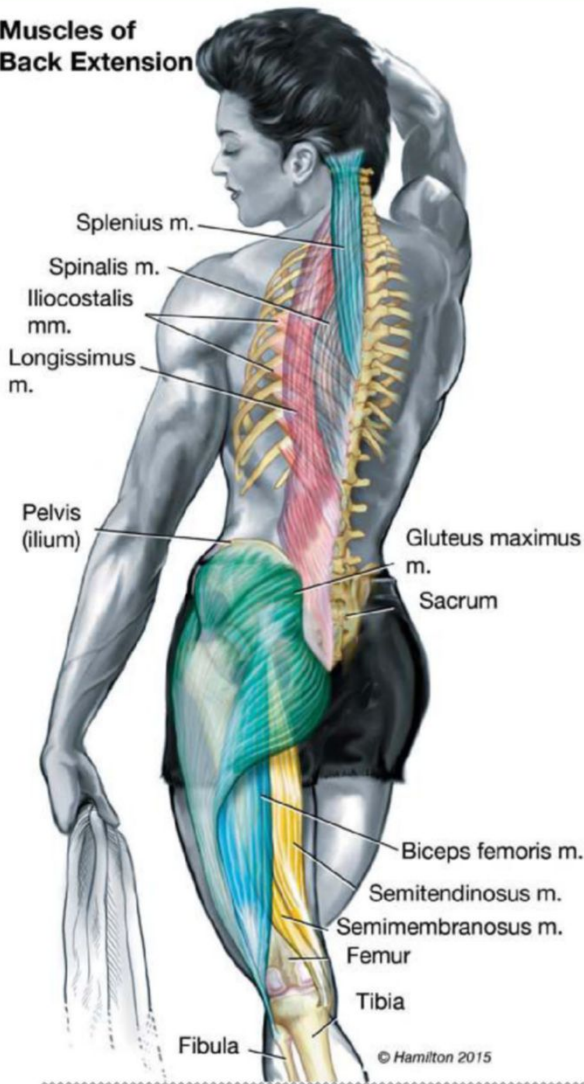
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WOMEN'S HEALTH

Muscles of Back Extension



With the warmth of the sun soaking your tan-starved skin, you might come to the realization that the winter has taken its toll on your abdomen and hips.

Unfortunately, you cannot hide your lower waist and hip shape in the summer like you can in the winter. Nevertheless, this might be just the opportunity you need to put the finishing touches on firming your entire waistline to salvage a great summer look for your core. Importantly, if you are committed to tightening your abs, you should raise the aerobic plan in your workout to twice each day if possible. That does not mean you need to live in the gym, as the second aerobic piece could be a brisk 30- to 40-minute walk in the evening.

The best abdominal exercises to both strengthen your core and firm your waist shortens the fibers in the front and sides of the abdominal wall.^{1,2} The reverse plank is not a sophisticated exercise, and it needs no specialized equipment, so it is sometimes an ignored exercise for the core.³ However, it hits postural back muscles and even the gluteus maximus and hamstrings while also strongly engaging and shortening the muscles of the abdominal wall.

TIGHTEN YOUR CORE AND LOWER BODY WITH

REVERSE PLANKS

Muscles Used

The rectus abdominis is the primary anterior abdominal muscle that is activated in reverse planks. It has a distal attachment on the pubic bone and pubic crest pelvic bones of the hip girdle. Superiorly, each half of this muscle inserts into the xiphoid process at the lowest part of the sternum and cartilages of the fifth to seventh ribs near the sternum.⁴ When both halves contract, the rectus abdominis muscle pulls the trunk forward so that your head and chest will move closer to your hips.^{4,5} The reverse plank exercise activates both the upper and lower parts of this muscle very effectively.

The fibers of the external oblique muscle on the side of your waist are angled in the same direction that your fingers would point if you were to put your hands in your pockets.⁴ The internal oblique muscle sits just deep to the external oblique muscle and

connects to the iliac bone of the hip. Its fibers run around the side of the trunk at right angles to the external oblique muscle and attach to the lowest three or four ribs.⁴ The external and internal oblique muscles are also activated by the trunk flexion and hip stabilization movements that are part of the reverse plank exercise.

Even your gluteus maximus muscle and hamstrings can be firmed by engaging in reverse planks. The gluteus maximus is the major hip extensor that attaches to the bones of the hip, the lumbar area of the lower back and the posterior part of the femur (thigh bone) at a section referred to as the gluteal line or gluteal tuberosity. When the torso is fixed and the hip joint is free to move, this muscle can extend the femur bone of the thigh. The gluteus maximus extends (straightens) the hip on the upward movement of the reverse plank.

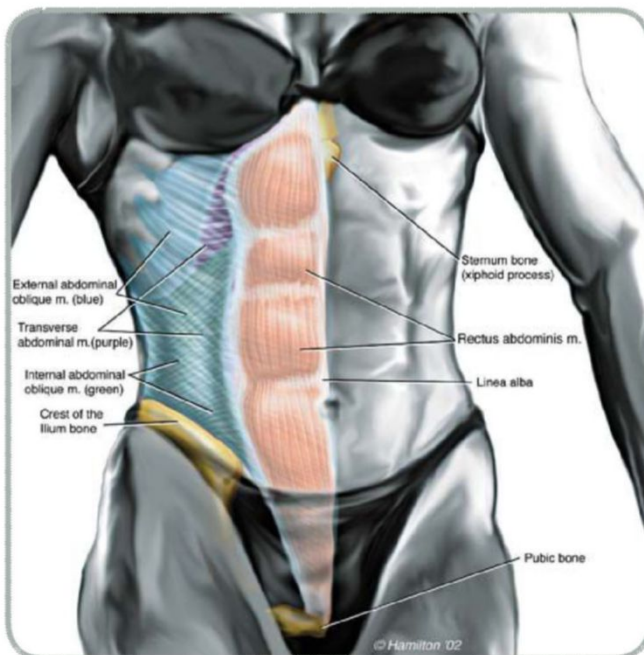
The hamstring muscles provide part of the shape that accentuates firm glutes as well as providing the sweeping shape to your posterior thigh. The hip extension lift upwards in the reverse plank is also assisted by the hamstring muscle, which is made up of the long head of the biceps femoris, semimembranosus and semitendinosus muscles. In general, these muscles attach to the hip, mostly at the ischial tuberosity, which is the bony part of your hip that you sit on when you are in a chair. The fibers in these muscles extend down the posterior side to attach either to the lateral side of the knee joint to attach to the fibula bone (and some ligaments) on the knee (long head of the biceps femoris) or medial side of the superior part of the tibia bone of the lower leg (semimembranosus and semitendinosus) just below the knee joint.

REVERSE PLANKS

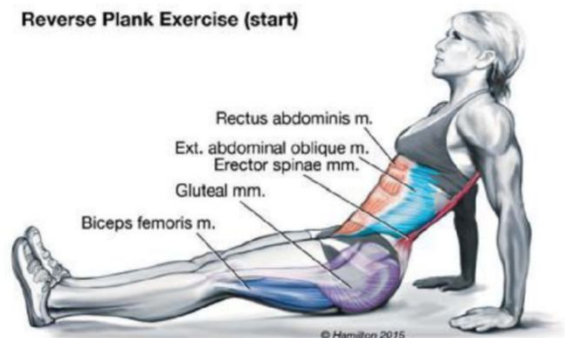
If your hips start to drop, rather than holding the straight line position, drop down, rest briefly, then start the next repetition. It is preferable to hold the straight line position for a shorter time than to attempt to lose the straight line and hold on for a longer period in an incorrect position.

The reverse plank exercise is effective but it is not terribly difficult to perform, especially once you get the feel of holding your body in a straight line. A lot of muscles are active, but your abdomen, hips and buttocks will really tighten and firm when you use reverse planks.^{6,7} If you increase the frequency of your aerobics, and use reverse planks as part of your regular core and abdominal training (maybe even a few sets at home between workouts), the transformation to your new flat and firm abdomen and firmer gluteals will not only be ready for display later this summer, it can also last throughout the year. ■

1. Sit on the floor with your hips flexed and with your legs extended in front of you, and your knees straight.
2. Put the palms of your hands on the floor and spread your fingers out for a good base of support. Lean backward so that your torso forms about a 45-degree angle with the floor. At this angle your hands should be behind your hip joints approximately straight down from your shoulders.
3. Support your weight on your heels and hands and lift your hips and body upward toward the ceiling.
4. Continue lifting until your torso, thighs and legs form a straight line.
5. Tighten your abdomen and pull in on your abdomen as you lift upwards, with the idea that you are trying to pull your abdomen inward toward your spine.
6. Try to hold the straight line position beginning at 15 seconds and working up to 30 seconds.
7. Reverse the lift by flexing the hips and lowering them back to the floor.
8. As soon as your buttocks touch the floor, begin the next lift upwards.



Reverse Plank Exercise (start)



Reverse Plank Exercise (finish)



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FLAT ABS:

HIGH-INTENSITY CARDIO

Versus

LOW-INTENSITY CARDIO

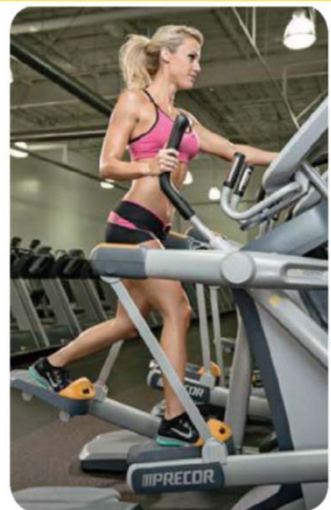


Photo: Per Bernal

Low-intensity cardiovascular exercise is the most common way to reduce body fat, despite mounting scientific evidence showing this form of cardiovascular training may not burn body fat as effectively as high-intensity cardio. In addition, low-intensity cardio has also been shown to inhibit lean muscle growth^{1,2}, making the use of this approach to enhance your physique even more questionable. Low-intensity cardiovascular training inhibits lean muscle growth because it burns a great deal of energy. In order to restore this lost energy, certain energy-consuming pathways, such as muscle protein synthesis, are shut down, ultimately diminishing lean muscle growth.³ Furthermore, if the energy deficit caused from cardio is too severe, the body will oxidize muscle protein for energy, essentially driving muscle loss.

Because of these shortcomings associated with low-intensity cardiovascular exercise, a different form of high-intensity cardio, known as high-intensity interval training (HIIT), has become more prevalent. Most notably, HIIT has a remarkable capacity to reduce body fat more potently than low-intensity cardio, without wreaking havoc on energy levels within the muscle cell, which enables optimal lean muscle growth as well.

HIIT Drives Fat Burning That Lasts Longer

HIIT entails working at 80 to 90 percent of your maximum capacity for roughly one minute, accompanied by less intense recovery periods at 40 to 50 percent of maximum capacity, for approximately one minute. Interestingly, studies have found that subjects performing HIIT increased cardiovascular capacity^{4,5} and burned considerably more body fat than those who did low-intensity cardio programs⁶, while simultaneously supporting lean muscle growth.

Scientists have shown additional lean muscle-building effects associated with HIIT. This type of training increases insulin signaling and improves glucose influx into the muscle cell, providing greater energy to the muscle cell for improved muscular performance—while also enhancing muscle protein synthesis for greater lean muscle growth.⁷

Additional research has shown that HIIT also burns fat for longer periods of time, post-workout, relative to low-intensity cardio.⁸ Researchers believe this may be due to the ability of HIIT to uniquely increase production of PGC1-alpha 1, which stimulates mitochondrial function within the muscle cell.^{9,10,11} Because mitochondria are the power-producing

organelles within the cell that oxidize fat, the ability of HIIT to enhance the activity of mitochondria directly increases the ability to burn fat, both during exercise and after exercise. In fact, studies have shown that high exercise intensity is required to increase caloric burn after exercise, as only high-intensity workouts increased excess post-exercise oxygen consumption (EPOC), which indirectly measures the amount of calories burned after exercise.¹²

HIIT Directly Triggers Thermogenesis

The ability of HIIT to increase PGC-1 alpha levels in muscle has additional benefits outside of the muscle cell, where it directly influences adipose tissue. More specifically, it has been shown that increased levels of PGC-1 alpha within the muscle cell induces the expression of a recently identified protein called irisin, which binds to receptors on the surface of white adipose tissue (WAT).¹³ The binding of irisin to receptors on WAT activates a process known as thermogenesis, which boosts energy expenditure and fat loss. Consequently, exercise protocols such as HIIT— that robustly increase PGC-1 alpha levels in muscle tissue— likely prompt the expression of irisin, driving thermogenic activity in WAT for superior levels of fat loss.

Low-Intensity Cardio Inhibits Muscle Protein Synthesis and Lean Muscle Growth

In addition to low-intensity cardiovascular exercise being inferior to HIIT at burning fat, as previously mentioned, it reduces the capacity to achieve lean muscle. This occurs because low-intensity cardio consumes a great deal of energy, which tends to activate the cell's central energy-sensing molecule, AMPK. Although activation of AMPK promotes considerable fat loss, it also prevents lean muscle growth by inactivating the enzyme mTOR, which is directly responsible for muscle protein synthesis and thus lean muscle growth. Consequently, cardiovascular exercise promotes considerable loss of bodyweight. However, a considerable portion of this weight loss has been shown to be muscle mass.¹

In summary, while low-intensity cardiovascular training regimens increase PGC-1 alpha levels, exercise protocols like HIIT induce PGC-1 alpha more potently— resulting in greater fatty acid oxidation without causing the muscle loss associated with extensive low-intensity endurance exercise.

Now, don't get me wrong— despite all of the condemnation of low-intensity cardio in this article, I'm not suggesting that

you stop performing low-intensity cardiovascular work. Low-intensity endurance exercise has very positive effects on your overall health. However, I do highly recommend replacing some, or most, of your low-intensity cardiovascular work with HIIT, especially when your primary objective is to build lean muscle mass and gain strength. On the other hand, if you're

willing to sacrifice some muscle so you can get extremely toned, then by all means crank up the low-intensity cardio and watch those pounds melt away. Just remember, some of that lost weight is going to be that hard-earned lean muscle you spent countless hours working toward in the gym— that certainly didn't come without hard work, and won't be easy to gain back. ■

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HIIT has a remarkable capacity to reduce body fat more potently than low-intensity cardio, without wreaking havoc on energy levels within the muscle cell.

For most of Michael Rudolph's career he has been engrossed in the exercise world as either an athlete (he played college football at Hofstra University), personal trainer or as a research scientist (he earned a B.Sc. in Exercise Science at Hofstra University and a Ph.D. in Biochemistry and Molecular Biology from Stony Brook University). After earning his Ph.D., Michael investigated the molecular biology of exercise as a fellow at Harvard Medical School and Columbia University for over eight years. That research contributed seminally to understanding the function of the incredibly important cellular energy sensor AMPK— leading to numerous publications in peer-reviewed journals including the journal *Nature*. Michael is currently a scientist working at the New York Structural Biology Center doing contract work for the Department of Defense on a project involving national security.

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EFFECT of MEAL FREQUENCY on FAT LOSS

It's commonly believed that consuming small, frequent meals optimizes fat loss.

According to theory, go without eating for more than a few hours and your body shifts into "starvation mode." Part of the starvation response is to slow down metabolism in an effort to conserve energy. Pretty hard to get lean when your metabolic rate isn't cooperating. Conceivably, providing your body with a constant stream of nutrients prevents the starvation response by "stoking the metabolic furnace," thereby enhancing the ability to burn stubborn body fat.

Or so the theory goes...

The Research

Despite a seemingly logical basis, however, the evidence generally doesn't support metabolic benefits of increased meal frequency. A study in dogs did show that consuming four small meals doubled the thermogenic response compared to eating an energy-equated amount of food as a large single meal.⁹ A follow-up study by the same group of researchers found similarly beneficial thermogenic effects in humans from a greater feeding frequency.¹⁰ On the other hand, a number of other tightly controlled human and animal trials have failed to show increases in metabolism as a result of spreading nutrient intake over multiple meals.^{5,7,13,18,19}

While acute studies on metabolism provide interesting mechanistic insight into the body's immediate response to different feeding frequencies, the only thing that really counts is whether a strategy of eating more frequently enhances fat loss. And the only way to determine actual fat loss is through randomized controlled trials (RCTs) that study this outcome directly.

Recently, my lab carried out a meta-analysis to gain greater clarity on the topic. We searched back to the early 1960s to find any and all RCTs that compared feeding frequencies of less than or equal to three meals a day with greater than three meals a day. Studies had to last a minimum of two weeks, involve healthy adult men and/or women, and equate the number of calories consumed between conditions. A total of 15 studies were determined to meet inclusion criteria. The results of these studies were then pooled for analysis to determine what, if any, effects on body composition can be attributed to how often you eat.



The Results

Feeding frequency had no effect on overall bodyweight. This seems in line with the findings of the acute studies mentioned earlier. Interestingly, however, our initial analysis did reveal a positive correlation between fat loss and the number of daily meals consumed. Here's the rub: A sensitivity analysis found that these results were almost exclusively attributed to a single study⁶—the effects all but disappeared when this study was selectively removed from analysis. A positive association also was initially found between meal frequency and reductions in body fat percentage, but again these results were unduly biased by one study¹ whose deletion rendered the results inconsequential.

Fat-loss Findings

So what can we glean from our research? Contrary to popular belief, it doesn't appear that eating small, frequent meals provides any meaningful benefits to fat loss. This was particularly apparent from the metabolic ward trials included in our analysis. As opposed to "free living" studies that allow subjects to self-report dietary habits (and thus have been shown to be quite unreliable), research carried out in a metabolic ward meticulously controls these variables; every morsel of food and every step of activity is carefully monitored by the investigators. Without exception, these studies showed no benefit to fat loss from higher meal frequencies.

Now a caveat to our meta-analysis is that we only included studies that matched caloric intake between feeding frequencies. This was necessary to rule out the potential for confounding from unequal energy consumption. However, some claim that the true benefit of an increased meal frequency is a better control over hunger, conceivably by regulating blood sugar and hormonal levels. If true, this in itself would promote a beneficial effect on fat loss given that weight management is basically a function of energy balance: take in more calories than you expend and you'll gain weight; create a caloric deficit and you'll lose weight.⁴ Thing is, research is conflicting on the topic. Although some studies have found that spacing out meals over the course of a day reduces hunger,¹⁴⁻¹⁷ others show no differences in satiety

regardless of feeding frequency.^{3,12} Several studies have even found greater feelings of fullness from consuming three as opposed to six daily meals.^{11,13} Considering the body of literature as a whole, evidence remains weak that eating frequent meals helps to control hunger; any beneficial effects are likely specific to the individual.

Personal Preference

The take-home message here is that eating small, frequent meals appears to have little if any effect on reducing body fat. From this standpoint, meal frequency should therefore come down to personal preference: choose whatever frequency fits your lifestyle. Focus on what's important to achieving fat loss: creating a negative energy balance and consuming adequate dietary protein.

Aside from fat loss, there is a compelling reason why feeding frequency may have important implications on body composition. Namely, the anabolic effects of a meal have been estimated to last approximately five to six hours based on the rate of postprandial amino acid metabolism.⁸ Given that you'll generally spend at least 16 hours of the day awake, you thus need at least three protein feedings to maximize anabolism. Indeed, recent research indicates that spreading protein intake out over four daily servings increases muscle protein synthesis to a greater extent than consuming the same amount of protein in two larger servings.² So eating a minimum of three daily meals spaced out no more than every five to six hours is a prudent strategy to promote lean muscle. ■

Brad Schoenfeld, PhD, CSCS, FNSCA is widely regarded as one of the leading authorities on training for muscle development and fat loss. He has published over 60 peer-reviewed studies on various exercise- and nutrition-related topics. He is also the author of the best-selling book, *The M.A.X. Muscle Plan*, and runs a popular website and blog at www.lookgreatnaked.com.

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HEALTH AND FITNESS HAPPENINGS

HERE'S A LOOK AT A FEW OF THE LATEST TRENDS IN HEALTH AND FITNESS:



FOOD TRENDS ▼

GLUTEN FREE, KALE, FAT-FREE AND LOW-FAT DIETS— IT SEEMS THAT EVERY FEW YEARS, THERE IS A NEW FOOD TREND THAT TAKES THE GROCERY AISLES BY STORM. BUT HOW DO FOOD COMPANIES AND GROCERS PREDICT WHAT WILL BE THE NEXT BIG HIT? ACCORDING TO THE WALL STREET JOURNAL, PREDICTING AND TRACKING TRENDS IS NOW EXTREMELY IMPORTANT FOR BIG FOOD COMPANIES. THE KEY IS TO JUMP ON TRENDS QUICKLY BUT NOT TOO QUICKLY IN CASE IT'S JUST A PASSING FAD. COMPANIES STUDY FOOD SALES DATA, HEALTH RESEARCH, AND WATCH THE INTERNET FOR TRENDS.

THE WALL STREET JOURNAL REPORTS THAT TYPICALLY, A FOOD TREND BEGINS WITH A FEW CREATIVE CHEFS AND SMALL BUSINESSES. IT THEN MOVES ON TO "FOODIES" BEFORE MOVING TO A WIDER AUDIENCE. FINALLY, IT BECOMES MAINSTREAM, OFTEN BEING DISCUSSED ON POPULAR RECIPE WEBSITES. THE TREND HAS FINALLY "ARRIVED" WHEN IT IS IN MOST GROCERY STORES AND FAST-FOOD MENUS. A TREND HAS "MOVED OUT" WHEN IT'S FAMILIAR BUT NO LONGER GROWING AS IT WAS ORIGINALLY. THIS IS HOW FOODS SUCH AS ACAI, KALE, SPROUTED GRAINS, ETC. BECAME POPULAR.

IN 2014, OVERALL U.S. FOOD SALES WERE FLAT WHEN COMPARED TO THE PREVIOUS YEAR, WHILE FOODS LABELED WITH SUCH HEALTH ATTRIBUTES LIKE

ORGANIC, GLUTEN FREE AND GMO-FREE ROSE ABOUT 13 PERCENT. WHOLE MILK HAS BECOME MORE POPULAR THAN SKIM MILK, AND BUTTER, EGGS AND HEALTHY FAT SOURCES ARE BACK ON MANY SHOPPING LISTS AFTER YEARS OF DECLINING SALES DUE TO LOW-FAT AND LOW-CHOLESTEROL DIETS (RESEARCH INDICATES THAT EGGS MAY NOT ACTUALLY RAISE CHOLESTEROL LEVELS).

SO WHAT'S THE NEXT BIG TREND? ACCORDING TO THE WALL STREET JOURNAL, A FEW SMALL COMPANIES ARE PITCHING CRICKET FLOUR AS A HEALTH SOURCE OF PROTEIN IN SNACK BARS. YES, YOU READ THAT CORRECTLY— THAT'S *GROUND UP CRICKETS*, WHICH ARE A GOOD SOURCE OF PROTEIN. BUGS ARE A COMMON FOOD AROUND THE WORLD, BUT NOT AS LIKELY TO BECOME A STAPLE IN THE U.S.— MAYBE WE SHOULD BE THANKFUL FOR THAT! ("HERE TODAY, KALE TOMORROW," THE WALL STREET JOURNAL, APRIL 15, 2015)

IN ►



OUT ▼



the chains. These boutique classes may be harder to find, but the classes are smaller and the environments tend to be more relaxed, reports Health.com. Many of these classes include props. For instance, trampoline classes are becoming more popular (attendees have individual trampolines to work on). There are also "surfing" classes that create workouts that derive inspiration from the real motions of surfing, and as a result increase core strength, balance and cardio conditioning.

It's clear that there are no excuses for skipping a workout anymore— with many options, you are bound to find something you like! ("5 Fitness Trends That Are Having a Moment," health.com, March 5, 2015) ■

studio. That way, when the first class is over, they simply need to stay put. ("In Yoga, It's a Downward Dog Eat Downward Dog World: Fans stretch bounds of decorum to sweat in prized classes; spot-saving alliance," The Wall Street Journal, April 18-19, 2015)

BOUTIQUE AND COMPETITIVE FITNESS ▼

Competitive classes can give you that extra motivation you need to keep going. At the cycling studio Flywheel, a scoreboard at the front of the class allows gym-goers to see their own metrics and compete against others, reports Health.com. There's also Orangetheory Fitness, which has treadmill/indoor rowing machines and weight training in one class. Attendees are hooked up to a heart rate monitor, enabling them to track their heart rate at the screen in the front of the room— and also allowing the trainer to call out slackers.

In addition, many fitness fanatics are opting for these smaller gyms rather than

CLASS IS FULL! ▼

Fitness classes are becoming so popular that attendees at one gym have to get smart about staking their spot, reports The Wall Street Journal. At Life Time Fitness in Rochester Hills, Michigan, members pack into yoga or dance classes during what some people there are calling "happy hour." Latecomers are often greeted by a "Class is Full" sign and a supervisor at the door, who some call "the bouncer."

In order to get into class, members are doing whatever needs to be done to get in— including attempting to bypass the long line, sneaking in without swiping membership cards and slipping in when "the bouncer" isn't looking. While waiting on line, members form "alliances" with others, so that if they are ever

running late, there is someone to save their spot. Some even take their dedication to a whole new level by taking the class that occurs before the one they really want to take, if it's in the same

STAY GROUNDED FOR FLAT ABS

As you probably are aware, having a strong and toned core not only looks great, it's also essential for whole-body strength and power. When you have a strong core, it's easier to perform other exercises because your core is truly the "powerhouse" of the body.

There are many tools that people use to work the core, including Swiss balls, BOSU balls, wobble boards and more. But, research has shown that instability training may not be as effective for working the core, and that you may be better off ditching the wobble boards and Swiss balls for firm, stable ground to best overload the core muscle groups. A study from California State University, Northridge, measured core muscle activation during the shoulder press, performed on stable and unstable surfaces, using electromyography (measures the electrical activity of muscles). It was found that core muscle load decreased with the instability of the surface.

Let's take a look at what it takes to build a strong and toned core that's functional and fit!

Getting to the Core

The many muscles that make up the core are vital for all bodily motions and postures. A strong core will help to stabilize the spine, transfer force between the lower and upper body, and stabilize the midsection when you sit, stand, reach, walk, jump, etc. So when you have a strong core, you will find that completing your other workouts becomes a little easier. When specific core muscles are weak, the nervous system steps in and uses other muscles to produce movement, which can stress the joints, overload sensitive spinal disks, decrease power and increase the risk of injury.

Because the core is complex, building the core muscles in isolation, particularly on unstable surfaces, may not be the best practice for optimal results. The strength of the movements may be *weaker* if the surface is unstable, as movement occurs by pushing against a surface and muscles get stronger when they contact against heavy loads. Loading is less on unstable surfaces, which means that changes in strength may also be less.

Training

When it comes down to it, if you want flat and strong abs, you have to train movements and not muscles. The core muscles work together to support the midsection and provide power and support for different movements. So an exercise program that aims to build a strong core should help the muscles in the pelvis, lower back, hips and abdomen work together to provide ease in movement.

The good news is that exercising on stable ground builds core stability while also increasing lower and upper body strength. For optimal results, your core training should emphasize large, whole-body exercises such as squats, deadlifts, standing overhead presses and plyometrics. In addition, bench crunches, jump squats, jump roping, bench curl-ups and deadlifts are also just a few examples of some

great choices.

These exercises are effective because they use heavier loads, shorter tension times and higher speeds. Because ground-based exercises have the same force and core-stabilizing requirements of most sports and movement skills, they are most effective.



To really increase the intensity and fat burning, try one of these high-intensity interval training workouts after your planks:

- **Sprints on treadmill**, 5 to 10 sets of 30-second sprints, one-minute rest between sets.
- **HIIT: StepMill**, 5 to 10 sets of 30-second sprints on the treadmill, one-minute rest between sets. ■

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4 NEW GLUTE AND HAMSTRING EXERCISES YOU AREN'T DOING

Sure, glutes are the new biceps. But the hamstrings are important, too— especially for females. Not only did a review of several studies find that women with patellofemoral pain syndrome (a very common form of knee pain) had weak glute muscles,¹ but studies have shown that females demonstrate substantially weaker hamstring muscles when compared to their quadriceps, which may be a contributing factor to the fact that female athletes are two to eight times more likely to sustain an ACL tear than males.^{2,3}

This article provides you four new moves— or new twists on classic moves— that you're probably not doing. Use these to spice up your workouts and improve the form and function of your backside.

THE WORKOUT

Although each of the following exercises involve hip extension, each maximally loads the glutes at varying ranges of hip extension due to the fact that your body position relative to the load varies in each exercise application. This is important because a 2013 paper published in the *Strength & Conditioning Journal* concluded that "A variety of exercises might be necessary to maximize hip extension strength."⁴

Perform the exercises for the sets and reps indicated:

1. DUMBBELL ANTERIOR LUNGE: 3 SETS X 8-10 REPS EACH LEG

2. TWO-BENCH HIP THRUST + HAMSTRING CURL: 2-3 SETS X 15-20 REPS

3. ONE-LEG HIP LIFT: 3 SETS X 10-15 REPS EACH LEG

4. SUPER DOG: 2 SETS X 25-40 REPS EACH LEG

Rest 60-90 seconds between sets.

Not only can you mix up the order for further training variety, you can also mix and match these exercises with the classic glute- and hamstring-building exercises you're already doing.

1) DUMBBELL ANTERIOR LUNGE

Set up: Stand tall holding dumbbells by your sides with your feet hip-width apart.

Action: Step forward with one leg, keeping your front knee bent 15 to 20 degrees and your back knee straight or slightly bent. As your front foot hits the ground, lean forward by hinging at your hips and allowing your rear heel to come off the ground. Your torso should be no more than parallel to the floor and your back should be straight. Reverse the motion by



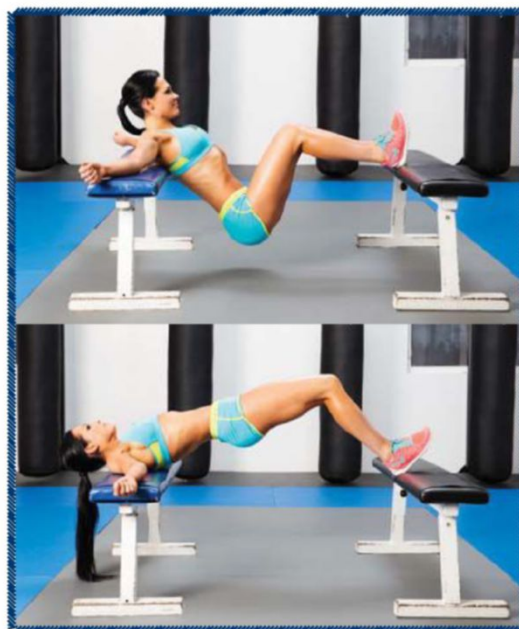
stepping backward so your feet are together again and you return to an upright position. Then perform the same motion stepping forward with the other leg.

Coaching tips:

- Do not let the dumbbells touch the floor at any point during this exercise.
- Do not allow your back to round out at the bottom of each lunge.
- This exercise should be done using good rhythm and timing, by performing the step and the hip hinge simultaneously, and also by reversing the motion in the same smooth, coordinated manner.

2) TWO-BENCH HIP THRUST + HAMSTRING CURL

Set up: Sit on the floor with your shoulders elevated on a weight bench or chair, rest your head and shoulders on the bench and open your arms to the sides with palms facing up. Position with your legs on top of another bench so that your



knees are bent at about 90 degrees and your ankles are flexed, keeping your toes up so only your heels are in contact with the bench.

Action: Lower your hips toward the floor until you've either lightly contacted the floor or can't go any deeper, then drive your hips back up until your hips form a straight line with your torso to complete one rep.

Coaching tips:

- Pause at the top of each repetition for one to two seconds.
- Be sure to extend from your hips and not from your lower back when performing this exercise.

3) ONE-LEG HIP LIFT

Set up: Lie in a supine position with your legs together, knees bent at 15 degrees and your feet resting on top of weight-bench or chair. Raise one leg off the bench or chair, flexing your hip and knee at a 90-degree angle. Hold a weight plate at your shin with both hands.

Action: Holding your one leg flexed, raise your hips into the air until your body forms a straight line. Slowly reverse the motion, allowing your hips to lightly touch the floor. Complete all the repetitions on one side before switching to the other leg.

Coaching tips:

- Be sure not to overextend at your lower back at any time.
- Your body should form a straight line from your shoulders to your ankle at the top of each rep.



4) SUPER DOG

Set up: Kneel and place your elbows on the floor, bent 90 degrees. Slide your right hand forward and stretch your left leg behind you until both are straight.

Action: Raise your right arm and left leg as high as you can, forming a straight line from your fingertips to your toes. Hold for two seconds, then return to start. That's one rep. Do 12 to 14 on each side.

Coaching tips:

- Place a pad or rolled up towel underneath your bent knee for comfort.
- Do not allow your hips to lift or your torso to shift forward as you perform this exercise. ■



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DOES YOGA BUILD STRENGTH?



Yoga studios are everywhere these days. But research has shown that yoga can have beneficial effects on physical and mental health. And while many people do yoga for its calming and stretching benefits, can yoga also help you build strength? And if so, can yoga replace weight-training workouts in the gym?

THE RESEARCH

In one study from 2012, a group of premenopausal women were randomly assigned to a yoga or control group. Twice a week, the yoga group completed 60-minute ashtanga yoga sessions (ashtanga yoga is more physically demanding than other yoga practices, and involves synchronizing breathing with a continuous series of postures). It was found that after eight months, the women in the yoga group had developed more powerful legs. However, they did not increase strength in other muscles and did not improve their cardiovascular fitness.

Another study involved Bikram yoga, which is performed in a heated room. In this case, 12 weeks of yoga enabled the group to deadlift more weight on a barbell than they could before starting the yoga trial. However, their handgrip strength or any other measures of health and fitness did not improve.

In addition, research has shown that yoga can build bone strength. A 2009 study found yoga may increase bone density in older adults. Strength training is the best defense against bone loss or osteoporosis, but yoga styles like ashtanga and vinyasa that require you to pull your own bodyweight up can also be beneficial for strength, as bodyweight training also has tremendous benefits and has been shown to help build muscle. Some poses that can help build upper body strength are downward dog, upward dog and the plank. The standing poses can help build some strength in the hamstrings, quadriceps and abs.

SUPPLEMENT WITH YOGA

When it comes down to it, muscles respond to intensity, whether it be from weights or yoga. The advantage of weight training is that you can increase the weight in order to get stronger. While yoga can help you increase some strength, you are limited to just your bodyweight.

Yoga is a great supplement to your workout regimen. It can help improve flexibility, promote relaxation, reduce stress, improve back pain, prevent injuries, lower blood pressure and more. A combination of traditional weight training and yoga seems to be the best approach if your goal

is to build muscle. Not only is the approach effective, but it could also help prevent boredom in your training while you reap the mind-calming effects of yoga. In fact, many athletes and fitness competitors incorporate yoga into their workout plan for the many benefits it offers.

The bottom line is that while yoga can have a small effect on strength, you are better off relying on the gym to build most of your strength rather than yoga alone.

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PAIRING YOGA AND BEER

It's a semi-new trend that's come about in the last few years: yoga classes followed by beer tastings, with many of these yoga classes even taking place inside breweries. It's happening all around the country— for instance, there's Happy Hour Yoga with Joe Sixpack that began in Philadelphia, BrewAsanas in Colorado and more. And while some yogis argue that alcohol and yoga are not meant to be paired together, a study published in the *Journal of Cereal Science* found that beer may actually have some health benefits.

The study involved analyzing barley grains— a common brewing starch— and beer samples. It was found that ample hordatines found in the beer may have antioxidant properties, and these hordatines have been shown to be good for digestion by triggering smooth-muscle contractions. The beers with the most benefits contain barley malts— such as stouts, ales, lagers and porters. Hordatine concentrations are typically lower in wheat and light beers, and they contain barely but also wheat, rice or corn. ■

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PIONEERS IN THE GAME

When it comes to surviving the test of time, very few companies can compete with Twinlab. In fact, it was a Twinlab formula that was one of the very first products I bought as an enthusiastic teenager. Since the 1980s, Twinlab has been a pioneer in the industry, bringing forth some of the all-time first product launches to the market. This was due to a creative R&D team that always made sure that they were the originators, and never the imitators. Fast-forward 30 years, and Twinlab still knows how to dial-in formulations to dazzle the industry. They have recently launched a new product line known as CleanSeries, and it is taking the supplement world by storm.

AS CLEAN AS IT GETS

When the bright minds at Twinlab brainstorm an idea, you can bet your bottom dollar that they are going to come up with something new and creative. The idea behind this new series was to provide customers with a line that has been long called for, but until now, no one has stepped up to the plate to make it happen. For years, people have been tired of useless ingredients, fillers, poisonous sweeteners and additives that have no place in a fitness supplement. The days of artificial colors, sweeteners and flavors are slowly going the way of the dinosaur, because people are getting more educated about what they are putting in their bodies and the harmful effects some of these bogus ingredients can have on their health. This is why Twinlab decided that enough was enough, and created the CleanSeries to take sports supplementation to a whole new level.

ONE HELL OF A FORMULATION

The initial launch for the CleanSeries is for their amazing formula known as Pre-Workout Activator. Unlike other pre-workouts that are loaded to the gills with stimulants, Twinlab decided to put some real science behind this formula and damn, is it awesome. In fact, it contains just the right amount of stimulation to keep you going hard through your workout without feeling tweaked out.

What I really like about Twinlab's Pre-Workout Activator is the inclusion of not one but a cascade of adaptogenic herbs. I am a big fan of adaptogens from both traditional Chinese medicine (TCM) and Ayurvedic medicine. These are compounds that strengthen the body's response to stress.

Twinlab's Pre-Workout Activator also contains *Rhodiola rosea*, which is a personal favorite of mine that is also known as Russian ginseng. The formula also has *Schizandra*, *Eucommia cortex*, ginseng, Ginkgo, Reishi and *Gynostemma*. These are actually some of the best adaptogens in the world, and rank among the top herbs in the tonic herb category in TCM. The fact that Twinlab's scientists keep on the cutting edge of both Eastern and Western science has got me impressed, big time.

THAT'S NOT ALL, FOLKS

If you thought that was it, think again. Twinlab included a complex Sustained Energy Matrix using the best carb sources to keep glycogen levels topped up, so you don't run out of steam halfway through your workout. They also included 3,200 milligrams of beta-alanine for another endurance booster that I simply love. They even included coconut oil due to its many health and performance benefits. Not to be forgotten is the wide variety of micronutrients to provide your body with optimum cofactors to keep it running like a finely tuned machine. Twinlab's Pre-Workout Activator is low in sugar, making it ideal for athletes from any sport.

Best of all is what's not in the product. Yes, you heard that right. While other companies load their products down with piles of unnecessary garbage, Twinlab decided to clean the slate beyond your wildest imagination. Let's take a look.

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REAL-WORLD SUCCESS

So if you are looking for a product that works just as hard as you do in the gym, then look no further. Twinlab's CleanSeries line is going to leave its mark in this ever-changing industry. Twinlab has filled a much-needed gap and is the first company to take that step in the right direction. I am sure other companies will follow suit once they realize Twinlab was in the forefront of making history in the supplement market once again. If you are tired of the same old same old with companies that seem to play copycat, then kick them to the curb. If you want a clean change that is only going to help you perform and look your best, then this is the series to make it happen!

For more information, visit cleanseries.twinlab.com. ■

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GET COMFORTABLE With **DISCOMFORT**

A KEY TO DIET AND FITNESS SUCCESS

Why is it so darn hard to lose weight— and keep it off for that matter? There are a bunch of physiological and psychological reasons I could list. To keep things simple, I believe it comes down to this: Eating healthy isn't convenient and doesn't taste as good as chocolate, and body-changing exercise is hard and takes up precious free time.

This is precisely why fad diets and training systems promise quick and easy programs where you will never feel hungry, unsatisfied or inconvenienced. Who wouldn't want that? However, as you know, these quick fix methodologies may work for a bit, but individuals can rarely commit for the long term. Why? In part, some of these programs are just whacky. But, in addition to that, we are destined to fail, because we don't have realistic expectations of the process.

It's Not Always Easy

Specifically, we are set up to believe that losing the weight and maintaining the loss will be easy, breezy. But, when the going gets tough on the way to our goal (which it always will), we aren't equipped for dealing with difficulties and challenges, like the candy bowl that won't stop calling your name. Learning to get comfortable with the discomfort associated with pursuing a goal like weight loss is critical to success.¹ The key is to master acceptance-based strategies that enable you to recognize urges without acting upon them.

That was something I learned competing as an IFBB pro. To get ready for a show, you are on a mission to look your absolute best by a certain date. There is no time for rationalizing a craving and "not feeling like" working out. You want to achieve the goal no matter what. And, as crazy as it sounds, it was fun, invigorating and empowering to prove to myself that I could demonstrate such discipline and be so in charge of my choices. However, I very clearly understood at the onset that the goal would be a challenge, and I accepted it wholeheartedly.

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TIPS FOR GETTING COMFORTABLE WITH DISCOMFORT

Now, I don't mean to over exaggerate the discomfort of pursuing your fitness goal. Living fit totally rocks. Eating healthy can be delicious. Training hard can give you an amazing high. However, it's not always easy to stay on track when life gets stressful. The key to keeping yourself on the path to your best is to be ready for it. Here are some tips/ reminders to help you:

Be Excited About Your Goal and Its Challenges.

Pursue goals that are meaningful to you, align with your core values and fire you up. Without such positive energy, the difficult times will be hard to push through. In addition, consider the challenges you will face along the way, and be ready to take each on with a sense of curiosity, excitement and confidence. Maybe even plan fun rewards for yourself each time you overcome one of those challenges.

Urge Surfing. This is an approach to mindfulness where you sit quietly, taking deep breaths, acknowledge the craving and really experience the physical sensations. Watch your thoughts, but don't judge them. Keep bringing your attention back to your breath and bodily sensations. You will find that the urge will begin to dissipate. Fighting or ignoring your craving can give it more power.^{2,3} Telling yourself not to think about chocolate only seems to make you think about it more!

Hunger Isn't An Emergency. Just because you are feeling a little hunger doesn't mean you have to immediately put the fire out. Most of the time, we aren't even in need of food biologically— it's just a craving or something emotional driving it. And, feeling a little actual hunger is good, especially if your goal is weight loss. So, sit with the discomfort, drink a little water and go about your other business until mealtime, which is probably no longer than an hour or so away.

Have a Specific Plan. Having a detailed nutrition and training plan allows you to put your program on autopilot. Doing so helps guard against momentary lapses of commitment to your goal.

Know Your Weaknesses. Consider scenarios in advance that challenge your resolve and set your intentions with *If, Then* statements. For example: If someone offers me seconds at the dinner party, then I will say, "Thank you so much, but I am full." Or, if I am feeling unmotivated to work out, then I will go to the gym and get started anyway. ■

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Curly Hair?



Sage Steele
TV sportscaster & journalist

Family, work, play...is it possible to do it all?
Sage Steele does it. Having one hair product that
controls frizz and **defines curls** means less prep time.

MIXED CHICKS®



FLAT ABS:

Are Carb-Loading Supplements SABOTAGING YOUR WAISTLINE?



Ever go to the gym and see people carrying around big jugs of fruit-colored water? It seems there is a belief that we must have plenty of carbs to fuel our training. True, our muscles use glucose from carbohydrate to fuel strength training— but is excessive use of carb-loading supplements leading to body fat retention and defeating your desire to have flat abs?

The role of carbohydrates in sports training, health and longevity is a hot topic of debate in gyms, clinics and laboratories. Physique athletes often utilize very low-carbohydrate diets to get ripped for competition. These diets often provoke anxiety over the idea that this will result in loss of hard-earned muscle. To their dismay, they must realize that any significant restriction of caloric intake can result in the loss of hard-earned muscle. However, low carbohydrate does not necessarily mean low caloric intake. Fat and especially protein can make up for the lack of carbohydrate that would otherwise result in muscle loss.

It is certainly true that low-carbohydrate dieting can affect our performance in the gym. Performance that suffers could lead to a lack of stimulus to increase lean muscle. Weight training to increase lean muscle has completely different energetics than running a marathon. Since we all have massive stores of calories as fat, it is best to maximize the use of fat as fuel when performing a task like long-distance running. Training in a relatively carb-deficient state can help one's body learn to become "fat adapted" for an endurance challenge. The relatively smaller glycogen stores that fuel resistance exercise need to be restored more deliberately, or performance suffers. Science shows that performance suffers in lower carbohydrate dieting.¹

It is pretty clear that low-carbohydrate dieting, where healthy fats and higher protein intakes are maintained to limit extreme caloric restriction, is very effective at maintaining lean muscle mass.^{2,3,4} Studies suggest that despite acute reductions in performance, the lower carbohydrate, high-protein diets are most effective in helping you get lean and maintain lean muscle.⁵ As we will further discuss, the carbohydrate intake is not essential to maintaining lean muscle, just performance.

Carb Intake, Performance and Belly Fat: a Fine Balance

The more difficult question becomes, when we are not dieting to lose fat, how much carbohydrate do we need to increase as much lean muscle as possible without getting

too fat? You could just carb-load every day, but your body will just store the extra calories as fat. All carbs are absorbed as glucose into your blood, which causes the release of insulin from the pancreas. Glucose is toxic to your blood vessels, causing "caramelizing" of the proteins lining their walls. This leads to inflammation and damage to blood vessels and other tissues that also become caramelized (i.e., tendons, nerves, etc.). Insulin release pushes glucose out of your blood vessels and into the liver, muscle and fat as quickly as possible, while turning on fat-storage enzymes. The more glucose that is present, the more fat is made.

It has been suggested that strength athletes need anywhere between four to seven grams per kilogram of bodyweight of carbohydrates for maximal strength-training performance.⁶ Of course, this is a huge variation, and is dependent on the individual and their stage or intensity of training. If you lean toward seven grams per kilogram, you may find that you gain more fat than you'd like, while four grams per kilogram may limit your gains and/or performance. You will have to figure out this balance for yourself.

One thing that seems clear is that there is a fine balance that most certainly deserves avoidance of any all-encompassing statement that says, "You should do this..." However, Antonio and colleagues have shown that one can overindulge in extra whey protein without concerns over generating more belly fat.⁷ In their research, they found that one can maintain a lean physique without significant addition of body fat, even with more than doubling their protein intake.

It is often said that glucose and insulin prevent the breakdown of lean muscle during intense training. One study by Børsheim et al. did demonstrate that 100 grams of carbohydrate, post workout, causes increases in insulin and reductions in muscle degradation.⁸ However, studies also demonstrate that adequate consumption of essential amino acids after training causes an increase in insulin that can also limit protein degradation.⁹ Even in the highly catabolic, fasted training state, anabolic supercompensation can occur with adequate post-exercise carbohydrate, protein and leucine.¹⁰ But is it the carbohydrate or the protein that is most important?

A combined protein and carbohydrate supplement has failed to show benefit over adequate protein alone.¹¹ When high-quality protein like whey hydrolysate is consumed, muscle protein synthesis can be maximized without additional carbohydrate. Only small elevations in circulating insulin are required to maximize muscle anabolism, and

CONSUME COMPLEX CARBOHYDRATES EVENLY SPACED THROUGHOUT YOUR DAY TO MAINTAIN CALORIES, BUT AVOID EXCESS IF YOU WANT TO AVOID A BIG BELLY.

amino acids can stimulate this level of insulin release without carbohydrate present.¹¹ It has been suggested that the leucine content of a protein can determine its ability to maximally stimulate muscle protein synthesis.¹²

Taking in Carbs to Restore Muscle Glycogen

As mentioned earlier, studies also show that carbs may be required on days where you have twice-per-day training sessions. It is thought that carbs after the first workout will restore muscle glycogen for subsequent bouts. The assertion that you need post-workout carbs likely started with literature looking into glycogen repletion after *endurance exercise*. After a long endurance training session, such as a long run, your glycogen stores can be significantly depleted. Studies demonstrate that consumption of carbohydrate immediately after such a training session improves restoration of muscle glycogen stores.¹³

Conversely, high-intensity resistance training bouts typically don't cause such significant reductions in muscle glycogen—40 percent at most. Unless you're training again in under eight hours, that glycogen content of your muscle will be restored easily from subsequent meals before your next training bout. Further research also suggests that consuming up to eight grams of glutamine can help restore muscle glycogen just as well as a glucose solution.¹⁴ Combining the glutamine with the glucose solution promoted storage outside of skeletal muscle like in the liver. So, do we really need extraordinary amounts of carbs to restore muscle glycogen for performance in the gym?

Recent studies suggest that training in a low-carb state for high-intensity interval training can improve performance when carbs are added later.¹⁷ If your first training session in a day depletes your muscle glycogen and you train in a depleted state for the second session, is it possible that the second session will create more adaptations to the training session? The science suggests that adaptations to the low-carb state help you to perform better in a carb-loaded state. By that thinking, should we be strategically limiting carbs in different training scenarios? Unfortunately, this data didn't examine maintenance of lean muscle or burning of fat in the long term.

In summary, consuming excessive amounts of carbohydrate, especially before training, limits your body's ability to mobilize fat as fuel and increases storage of the added calories as fat. Excessive carbohydrate intake may even limit your body's ability to adapt to limited fuel sources. I propose that training without pre-workout carbs will help you mobilize fat and create more muscle machinery for functioning during a pre-contest, carb-restricted diet. I would recommend that you increase your protein intake through supplements like leucine-rich whey isolates in order to avoid fat storage and maximize muscle protein synthesis. Consume complex carbohydrates evenly spaced throughout your day to maintain calories, but avoid excess if you want to avoid a big belly.

MERATRIM: FAT-LOSS MIRACLE?

By Victor R. Prisk, M.D.

In India, an ancient system of health care called ayurvedic medicine classified many herbs for their clinical benefit. Nutraceutical companies have looked to this system to identify herbs that may be of benefit as supplements for weight loss. By screening the weight-loss activity of many herbal extracts in the laboratory, supplements for human consumption can be hypothesized and developed.

Meratrim is a patented blend of ayurvedic herbs, including extracts of the flower heads from *Sphaeranthus indicus* and the fruit rinds of *Garcinia mangostana* that were determined to have fat-fighting properties in the lab. Examining the effects of this blend demonstrated that it reduced the formation of fat cells, decreased uptake of fats into those cells and increased breakdown of stored fat.¹⁵

Of course, lab studies need to be followed up with high-powered, strongly designed human clinical trials. Randomized, double-blinded, placebo-controlled clinical trials are essential to understanding whether a supplement performs better than a sugar pill. Such studies have concluded that Meratrim significantly reduces bodyweight, body mass index (BMI) and waist circumference.^{15,16} Further, these studies have shown significant tolerability without physiologic or clinical side effects.

As this supplement becomes more popular, as it certainly will with such data, hopefully more independent university studies will validate the findings of Stern and colleagues at the University of California, Davis. Is this a miracle for weight loss, as Dr. Oz would say? No, but when combined with the true miracles of weight loss, proper diet and exercise, Meratrim supports achieving that goal. ■

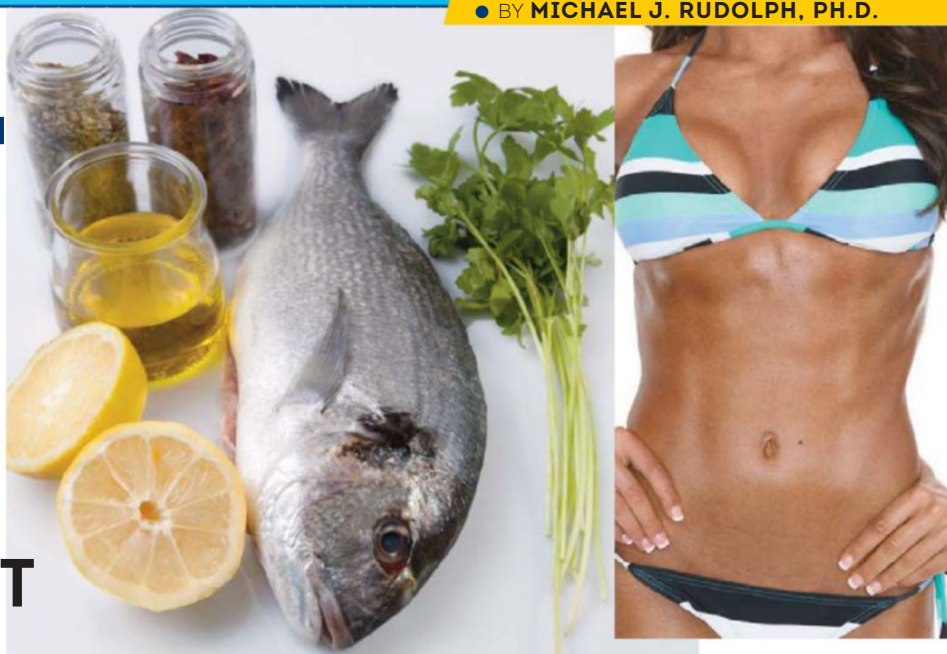
Dr. Victor Prisk is a board certified orthopaedic surgeon and IFBB professional bodybuilder in Pittsburgh, PA. Dr. Prisk is an active member of the GNC Medical Advisory Board and creator of the "G.A.I.N. Plan." He is an NCAA All-American gymnast, champion swing dancer and NPC Welterweight National Champion.

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FLAT ABS

THE MOST **EFFECTIVE** DIET



For the woman or athlete who takes her weight training seriously and wants results, holding too much body fat hinders optimal performance. So, gym rats and athletes strive to reduce body fat as much as they can. The most common dietary approaches used today to decrease body fat usually involve restricted caloric consumption. Unfortunately, reducing caloric intake can be grueling, especially if the food you're ingesting doesn't mitigate hunger to some degree. Furthermore, reducing food intake also tends to decrease the body's energy expenditure or metabolic rate, primarily due to a reduction in lean body mass and an enhanced metabolic efficiency. These energy-sparing mechanisms are counterproductive, and diminish the ability to burn body fat. Incorporating dietary approaches that decrease hunger and impede fat-saving, compensatory mechanisms should more readily encourage fat loss. Consequently, innovative dietary routines, supplemented with the right macronutrients and compounds that effectively improve energy expenditure and decrease hunger, should ease the difficulty from a low-caloric diet and improve the ability to shed body fat.

Intermittent Fasting Potently Burns Fat While Supporting Lean Muscle Growth

One of the more effective dietary protocols for fat loss involves the consumption of roughly 600 calories per day a few days per week, followed by normal caloric intake. This approach, known as intermittent fasting, may seem a bit extreme because of the very low amount of caloric intake. Yet, this approach strongly activates the energy-sensing molecule AMPK, resulting in fat loss above the expected amount, by simply consuming only 600 calories per day.¹ This added fat-cutting effect is likely due to the cyclical nature of caloric consumption during the intermittent diet that uniquely activates AMPK for superior fat loss.

Another advantage of intermittent fasting, not usually associated with caloric restriction, is improved lean muscle growth. This is because intermittent fasting reduces caloric consumption for a brief time, which greatly decreases intramuscular fat stores.² The decrease of fat within muscle tissue has been shown to enhance the muscle cell's response to the muscle-building hormone insulin³, which drastically increases muscle protein synthesis, supporting greater lean muscle growth.⁴

High-quality Protein Loaded in Essential Amino Acids Decreases Body Fat

In addition to dietary approaches, the right macronutrients also play an essential role in minimizing body fat. One of the more well-characterized macronutrients copiously ingested to support fat loss has been protein. However, it is not just

the quantity of protein in your diet that reduces body fat, but also the quality of protein consumed that has a significant effect on fat loss. Protein quality is defined as the percentage of essential amino acids to total protein consumed, and diets with greater levels of essential amino acids (protein quality) increase fat loss.

Previous studies have clearly shown higher protein in the diet decreases body fat, yet a more recent investigation by Loenneke et al.⁵ demonstrates that consuming high-quality protein rich in essential amino acids may be the more precise way to reduce body fat. In this study, 27 men and women had their diets monitored for the consumption of quality protein, with the threshold being 10 grams of essential amino acids per meal. At the conclusion of the study, body fat measurements were made, and the individuals who consumed the highest quality of protein had the greatest decrease in body fat.

Putatively, high-quality protein enhances fat loss because essential amino acids, especially leucine, stimulate muscle protein synthesis—leading to greater lean muscle. The increase in muscle boosts metabolic rate, which increases the consumption of fatty acids, leading to fat loss. In addition, leucine also has the ability to inactivate the energy-sensing molecule AMPK in the brain. The inactivation of AMPK in the brain decreases hunger, conceivably lowering food intake and ultimately resulting in greater fat loss.⁶ Of course, at the same time, leucine also inactivates AMPK throughout the rest of the body. Since AMPK stimulates fatty acid oxidation, the inactivation of AMPK from leucine intake would likely decrease fatty acid oxidation levels and therefore, fat loss. That said, it seems plausible that leucine's

ability to enhance energy expenditure and reduce hunger is greater than its negative impact on fatty acid oxidation, as leucine intake has clearly been shown to lower body fat.

Mediterranean Diet Improves Overall Health and Triggers Fat Loss

In addition to high-quality protein intake, the Mediterranean diet includes the high intake of olive oil, fish, fruits and vegetables along with a moderate consumption of dairy products. All told, this diet is loaded with additional macronutrients and compounds that reduce the risk for heart disease and certain cancers, while also enhancing fat loss.⁷ As a result, it has gained considerable attention as an effective fat-loss regimen, with plenty of science to back it up.

For starters, the monounsaturated and polyunsaturated fatty acids found in olive oil and fish have definitively been shown to help burn more calories. In fact, fish oil has also been shown to positively impact body composition, causing greater fat loss, especially around the waist— as subjects given fish oil had a larger reduction in waist circumference relative to controls consuming no fish oil.⁸ In addition, olive oil also contains a wide variety of polyphenolic compounds, like oleuropein, that enhance thermogenic fat loss for an even greater loss of body fat.⁹

The consumption of fruits and vegetables associated with the Mediterranean diet provides carbohydrates with a low-glycemic index that triggers a lower insulin response because low-glycemic carbohydrates don't cause blood sugar levels to rise very quickly. So the requirement for insulin secretion is lowered. Since insulin directly inactivates fatty acid oxidation, the lower insulin levels in response to low-glycemic carbohydrate sources raises the level of fatty acid oxidation, resulting in lower body fat.¹⁰

Finally, the consumption of dairy products while following the Mediterranean diet also improves the ability to lose fat, as many scientific studies have shown that the inclusion of dairy products, like milk, in the diet accelerates the reduction of fat mass.¹¹ Since milk is loaded with calcium, which indirectly activates the AMPK-driven fatty acid oxidation¹²,

scientists believe that calcium is one of the key ingredients in milk that burns fat.

Milk is also fortified with vitamin D, which together with calcium, has been shown to promote greater levels of fat loss. In fact, a study by Siddiqui et al.¹³ looked at two different groups of obese rats that were fed a low-calcium, low-vitamin D diet or a high-calcium, high-vitamin D diet. After weeks on both diets, the rats consuming a high calcium and vitamin D diet demonstrated reduced body fat mass due to a greater level of fatty acid oxidation. ■

For most of Michael Rudolph's career he has been engrossed in the exercise world as either an athlete (he played college football at Hofstra University), personal trainer or as a research scientist (he earned a B.Sc. in Exercise Science at Hofstra University and a Ph.D. in Biochemistry and Molecular Biology from Stony Brook University). After earning his Ph.D., Michael investigated the molecular biology of exercise as a fellow at Harvard Medical School and Columbia University for over eight years. That research contributed seminally to understanding the function of the incredibly important cellular energy sensor AMPK— leading to numerous publications in peer-reviewed journals including the journal *Nature*. Michael is currently a scientist working at the New York Structural Biology Center doing contract work for the Department of Defense on a project involving national security.

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The 2015 USDA Report Dietary Guidelines

Our Government Is Telling Us What to Eat— Should We Listen?

In the “dietary fat is evil” 1990s, we were practically spoon fed low-fat and fat-free foods by the truckload. Americans took the advice to heart and dutifully cut down on eggs, shrimp, full-fat dairy and other higher fat foods while turning to fat-free cookies, bagels and fat-free butter-like spread. Despite following this advice, our nation kept getting fatter. And then a plethora of movies hit the theaters to show us how our food is produced and why we are fat. When food companies started taking the fat out, they often replaced it with sugar while total calories stayed the same or increased.

As journalists started digging through dietary research and interviewing experts, a story started to unfold about politics, food lobbying and dietary

recommendations; the three are so intertwined some have suggested our government couldn't possibly make non-biased recommendations about nutrition and health. If you too are tired of conflicting nutrition advice and not sure who to believe, it's time to take an in-depth look at the Dietary Guidelines for Americans, why we have them and what they mean for you.

Every five years, the Dietary Guidelines for Americans are updated by an advisory committee to provide science-based recommendations to the public to promote health and reduce risk for chronic diseases. In addition, the Dietary Guidelines influence federal food and nutrition policy as well as education initiatives. The Scientific Report of the

2015 Dietary Guidelines for Americans Committee (DGAC; the 2015 Dietary Guidelines for Americans are expected to be released later this year) kept two facts in mind while combing through the literature on nutrition and health: approximately two-thirds of U.S. adults are overweight or obese, which increases their risk of developing certain chronic diseases, and about half of all American adults have one or more preventable, chronic diseases. Over consumption of calories, poor diets and lack of physical activity are considered the primary causes of becoming overweight and obesity as well as chronic disease. And therefore, all are preventable and the Dietary Guidelines are intended to steer Americans in the right direction. In addition to these two overarching themes,

It's SAD: the Standard American Diet

We are an overfed yet undernourished nation. The average American diet is high in calories as well as nutrients and foods that contribute to adverse health effects. According to the DAGC, Americans are consuming too much sodium, saturated fat, refined grains, sugar-sweetened beverages (drinks with added sugars), sweets and desserts.

The Scientific Report of the 2015 DAGC suggests a diet including less than 2,300 milligrams of sodium per day, yet they dropped previous recommendations for those with heart disease to decrease sodium intake even further to 1,500 milligrams per day, citing there is no evidence that it is necessary or beneficial to decrease sodium intake below 2,300 milligrams. The Scientific Report also recommends avoiding partially hydrogenated oils since trans fat intake from partially hydrogenated oils is associated with increased risk of cardiovascular disease. In addition, less than 10 percent of total calories should come from saturated fat and foods high in saturated fat should be replaced with unsaturated fat, particularly polyunsaturated fats.

Research shows this strategy can help reduce total and LDL cholesterol. Here's an example: take butter or shortening and swap it out for soybean, corn or safflower oil. The Scientific Report cites several research studies that collectively indicate reducing saturated fat or total fat and replacing it with any type of carbohydrate is not an effective strategy for reducing risk of cardiovascular disease. In addition, low-fat diets that replace fats with refined carbohydrates such as cookies, candy and white bread are also bad for cholesterol and blood lipids (since refined carbohydrates increase triglycerides and lower HDL cholesterol). And therefore, total fat shouldn't be the focus but instead choosing better sources of fat should be.

Also, the Scientific Report recommends consuming a maximum of 10 percent of total calories from added sugars while low-fat and nonfat foods high in refined grains and added sugars should be avoided. Foods and beverages high in added sugars should be replaced with healthy options, including water, as opposed to foods and beverage that contain low-calories sweeteners. This makes sense— if you normally drink soda, replace this with sparkling or tap water.

In addition to over consuming certain nutrients, many Americans are not meeting their dietary requirements for specific vitamins and minerals. These shortfall nutrients include vitamins A, C, D, E, folate, calcium, magnesium, fiber and potassium. In addition, iron is recognized as a shortfall nutrient for adolescent females and premenopausal women— the two groups that are most likely to be deficient in this mineral. Because low intake of these nutrients could lead to adverse health effects, the Scientific Report encourages foods that are good or excellent sources of these nutrients— vegetables, fruits, whole grains and dairy.

The DGAC also identified three healthy eating patterns that meet the nutrition goals for most nutrients. Healthy U.S.-Style Patterns are nutrient-rich versions of current food consumption patterns in the United States. Healthy Vegetarian Patterns will be based on what vegetarians eat and include more legumes, processed soy products, nuts, seeds and whole grains compared to the Healthy U.S.-Style Patterns while leaving out meat, poultry and seafood. Calcium levels are highest in this pattern because it not only contains dairy but also tofu, which is typically made with calcium. Healthy Mediterranean-Style Patterns will be based on Mediterranean diet patterns and include more fruit and seafood and less dairy than Healthy U.S.-Style Patterns. Because this diet includes less dairy, it also includes lower amounts of calcium.

Keeping the Food Supply Safe and Sustainable

The Scientific Report also addresses the impact of food and beverages on the environment from farming to waste disposal. Focusing on the effect our food intake has on the environment helps ensure a safe and sustainable food supply now and for future generations. And, because the average U.S. diet requires a tremendous amount of resources including land, water and energy to produce, food production accounts for 80 percent of deforestation, more than 70 percent of freshwater use and up to 30 percent of human-generated greenhouse gas emissions. In addition, overcrowded fisheries and fully tapped wild caught fisheries may make it a challenge to produce enough safe seafood at an affordable price for Americans.

According to the Scientific Report, a sustainable diet is higher in plant-based foods, including vegetables, fruits, whole grains, legumes, nuts and seeds, and lower in animal-based foods. In addition, a sustainable diet is a healthy diet that can be achieved through the three recommended dietary patterns. Moderate consumption of seafood is associated with health benefits and an important component of two of the three dietary patterns, and though seafood contains organic pollutants as well as mercury, both of which are associated with health concerns, the Scientific Report suggests what nutrition experts have been saying for years: the health benefits of seafood far outweigh any potential health concerns. If you're interested in finding out which fish are best for your health and good for the Earth, check out the Monterey Bay Aquarium's Seafood Watch program at seafoodwatch.org.

Some congressional representatives, particularly those from states where many cattle farms reside, are pushing back against sustainability recommendations by suggesting that environmental concerns may distract the public and doing so detours from the purpose of the Guidelines. In addition, the meat industry is up in arms because the suggestion to decrease animal-based foods, including red meat, doesn't take into account the nutrition value of lean cuts of beef. Beef is not only rich in protein— and animal-based proteins generally contain more of the amino acids necessary for building and retaining muscle— but also lean cuts of beef contain several other nutrients and can be enjoyed while still staying within the saturated fat guidelines. The meat industry has also zoned in on iron, given that many women are not consuming enough of this mineral.

For the first time ever, coffee and caffeine intake will be addressed in the 2015 Dietary Guidelines for Americans. The DAGC found no association between moderate consumption of coffee (up to 400 mg of caffeine per day or the amount in three to five cups) and long-term health risks in healthy individuals. In addition, coffee consumption is associated with a reduced risk of type 2 diabetes and cardiovascular disease, while some evidence also suggests regular coffee/caffeine drinkers have lower rates of Parkinson's disease. Children and adolescents should limit or avoid caffeine due to a lack of caffeine research in these age groups.

Should You Follow It?

Few people would disagree with the DAGC assessment of the typical American diet. Many people are getting too many calories while eating nutrient-poor foods. As a result, a good portion of the population is falling short on certain vitamins, minerals and plant-based compounds necessary for good health and disease prevention while over-consuming nutrients and foods that may contribute to adverse health effects. And, years of research show that primarily plant-based diets are associated with a decreased risk of certain cancers, cardiovascular disease and lower bodyweight.

In addition, a recent study found that a vegetarian diet with fish (pesco-vegetarian diet) was more effective than both a vegan diet and lacto-ovo vegetarian diet (including milk and eggs) for lowering the risk of colorectal cancers, the second most deadly cancer in the U.S. And though it isn't entirely clear if the link between vegetarian diets and a reduced risk of certain cancers such as colorectal cancer is the result of cutting out meat or increasing plant intake, it is very clear that this dietary pattern is associated with improved health. And therefore, even if you disagree with parts of the 2015 Dietary Guidelines for Americans, keep in mind there are a variety of effective dietary approaches depending on a person's main goal (weight loss, reduction in IBS symptoms etc.). However, when taking the current science on dietary intake and disease risk into account and combining it with typical American eating patterns and nutrient intake, the Dietary Guidelines provide a sound approach for decreasing and maintaining a healthy weight while also lowering one's risk of chronic disease. ■

REFERENCES

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